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Want a raise?
IT managers share the do's and don'ts of asking for one. **71**

Kill it now!
Put project management out of its misery, Peter G. W. Keen writes. **64**

The skills struggle
It's time to restock the global IT labor pool. **Follows page 60**

COMPUTERWORLD

The World's Technology Newspeper
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December 7, 1998 • Vol. 32 • No. 49 • $4/Copy

Delta flies middleware beyond its expectations

Delta's Mark Whitney: "We would rather buy something off the shelf" than devote staff to proprietary middleware upkeep

By Robert L. Scheier

MARK WHITNEY and Larry Lockett had extra reason to be grateful this Thanksgiving.

A new passenger boarding system worked as planned during the holiday — even though a crucial bug fix from IBM arrived too late to install before the Thanksgiving travel crunch.

That's good news for Delta Air Lines Inc. because the application — which relied on Whitney and Lockett's messaging infrastructure — automatically updates gate agents with crucial information, such as when a connecting flight touches down or when another agent

Delta, page 88

Grocer trips over SAP

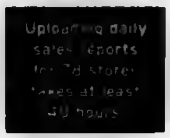
EARLY-RELEASE R/3 STYMIES SYSTEM PERFORMANCE

By Craig Stedman

A SECOND RETAILER in the grocery industry is having major problems installing a retail-specific version of SAP AG's R/3 application software, *Computerworld* has learned.

Corporacion de Supermercados Unidos, a San Jose, Costa Rica, company that runs about 100 grocery stores in Central America, has been wrestling with multiple performance problems since going live with an early-release version of SAP Retail 4.0 in October.

CSU executives last week said the problems have slowed down key business tasks such as processing merchandise orders from stores, reporting their daily sales and shipping goods from the company's central warehouse. That in turn is forcing CSU to assign teams of workers to manually clear transactions around-the-clock and then to clean up incorrect data produced by all the manual work.



"We knew we were working with a new system that still had bugs, but this is much more than we ever expected," said Hugo Pereira, SAP project manager at CSU. As a result, he added, the retailer has had to slow the rollout and could exceed its $7 million project budget by as much as $2 million.

Raul Vejar, SAP's managing director for Mexico and Central America, said many of the problems at CSU stem from its use of the early release of SAP Retail 4.0, instead of the production version that became available last summer.

The production version "is the one that we want our customers to go live with," Vejar said, and upgrading to that "hopefully will take care of most

SAP, page 89

Exxon/Mobil sets up mega SAP project

By Julia King and Kim S. Nash

EXXON CORP.'s $75 billion takeover of Mobil Corp. will create the world's largest corporation and what could be the world's largest SAP systems integration project.

But combining the two companies' processes into a single, enterprise SAP system is just one of several critical information technology projects.

The merger of the two oil giants also is expected to yield cost savings in the billions, but pinpointing IT's contribution to that financial bonanza remains a puzzling prospect at best.

The reason: After consolidating data centers and redundant networks, there isn't a lot left to cut from either company's already lean IT organization.

The IT groups "at both companies already have cut costs significantly and become very efficient operations, so you really wouldn't expect there to be much left to cut," said David

Merger, page 89

Boeing layoffs sidestep IT

By Jaikumar Vijayan and Thomas Hoffman

The major restructuring that The Boeing Co. announced last week will mean thousands of layoffs — but probably not in information technology areas.

That's because the $56 billion aerospace giant is consolidating 400 computer systems in its commercial aircraft division in a massive overhaul of its manufacturing processes.

Seattle-based Boeing is counting on such technology projects to turn its fortunes around. So it's likely to leave its 7,000-person IT group intact, said IT and aircraft industry analysts.

"They've been basically operating their plants on 1970s

Boeing, page 88

WALKING *the* WALK

In their holy quest for business/IT alignment, many companies require IT people to spend some time working alongside cashiers, field technicians and other front-line employees, senior editor Kathleen Melymuka reports. Done right, it gives IT professionals a clear view of what end users really need from [illegible] times. Done [illegible] it's [illegible] can [illegible]

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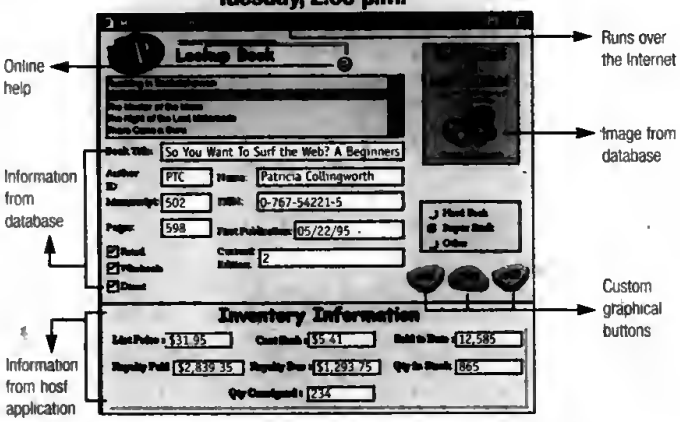

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The Net is making seller and buyer relationships three-dimensional. *Net Future*, by Chuck Martin. **In Depth, page 69**

Jini, Sun's new technology, will let users plug devices into a network and immediately start work. **QuickStudy, page 29**

Just for Feet's Brandon Scordino and David Meany say an intranet helped earn record profits. **Internet, page 48**

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EXECUTIVE Briefing

News summary for senior managers

■ **The Exxon/Mobil merger may create the biggest SAP implementation ever, as the two try to merge separate ERP systems. Both companies run very lean IT organizations, however, and year 2000 is looming, so resources for the systems merger may be scarce. After 2001, analysts expect the joint company to pare down IT again. In the meantime, it may retire many techies and rehire them as consultants, analysts said.** Page 1

■ SAP's retail version of R/3 is causing fits at a Costa Rican grocery chain, which may see its planned $7 million rollout hit $9 million. Orders, reports and distribution functions are slow, forcing the company to clear transactions manually, which introduces more errors. SAP is working on problems but said beta software is part of the cause. A U.S. chain had similar problems, prompting it to shelve the project, but others have dealt with bugs and recovered. Page 1

■ Many companies find that putting IT people in the jobs of end users for a while helps them learn how to tune technology for business. But if it's done wrong, the technology people can get in the way, hindering the process they're supposed to help. Done right, it provides insight on the little things — such as how a spreadsheet looks — that make a big difference to end users. Page 60

■ Surveys and CIOs both say the role of the top corporate technologist is becoming more focused on the business. But CIOs are split on the value of outsourcing — oft-cited as a panacea for the business-focused CIO. Some think it will off-load mundane work to help them hob-nob and strategize in the executive suite; others think long-term deals will hinder their ability to respond to business changes. Page 41

■ FreeMarkets OnLine is applying online-auction technology to the traditional corporate bidding practice. It helps manufacturers put requests for proposals online and lines up suppliers. Users say they save on supplies but acknowledge that some large suppliers resist what can become an electronic bidding war. Page 45

■ Cessna started its year 2000 repair work in 1995 and has a solid remediation plan in place this year. Program manager Sandy Gieber says he's worried about how prepared the FAA and Cessna's partners are, but he adds that the company will keep operating right through the deadline. "The world isn't going to end Jan. 1, 2000," he says. Page 41

■ Half of all nonbusiness bank accounts are unprofitable to the bank. And more consumers are putting money into mutual funds and other nonbank investments. To improve that picture, banks are using data mining and other techniques to identify and cater to their most profitable customers and figure out how to cut the cost of serving the rest. Page 14

If so, check out our online resources
www.computerworld.com/more

Utility powers up Net strategy to lure customers

By Sharon Machlis

IN AN ERA OF rampant deregulation in the oil and gas industry, Columbia Energy Inc. has launched an ambitious, multimillion-dollar Internet strategy to woo newly liberated consumers.

The Herndon, Va.-based utility plans to create a network of up to 100 local and regional Web sites nationwide — even in markets the company doesn't yet serve. The sites will offer bill payment capabilities, tools for at-home energy audits, help with buying appliances and feature articles that are aimed at homeowners.

Columbia's first new sites, *www.atlantaenergy.com* and *www.georgiaenergy.com*, made their debut last month, although several planned features will be added in coming weeks. So far, the sites already account for 4% of the company's new customer sign-ups in Georgia.

"It's all about customer acquisition and customer retention," said Vice President and CIO Eric Singleton (esingle@columbiaenergy.com).

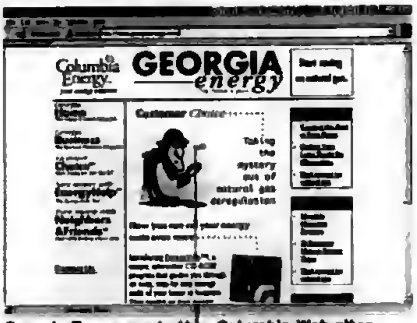
Deregulation is "the driving force" behind the Internet project, Singleton said, as utilities move from almost guaranteed markets by geography to a free-for-all scramble for market share. Columbia is a $4 billion-per-year subsidiary of Columbia Energy Group.

Potential customers now can sign up online to switch their natural gas service. Soon, there will be deals to offer discounts from major vendors and a partnership with a national retail chain.

"It's kind of exciting to hear," said Rick Nicholson, an analyst at Meta Group Inc.'s energy information strategies practice in Denver. Utility Web sites are generally "pretty pitiful right now . . . compared to other industries. There's very little interactivity."

"We believe strongly in how we use the Internet to increase speed of service and value-add for our customers," Columbia Energy CEO Paul Feldman said in a statement released by the company. "It also gives Columbia much greater reach in our channels at substantially reduced cost."

Corey Brown, Internet channels manager at Columbia Energy, said the new sites will not only boost marketing efforts, but also cut costs by letting customers manage their own accounts online. "It's a much cheaper way to maintain a customer" than monthly mailings and calls to service representatives, he noted.



Georgia Energy and other Columbia Web sites debuted last month, but they already generate 4% of the company's new customers in Georgia

How different is the new, deregulated environment? Nicholson pointed out that one of the largest gas retailers in Georgia now is Amway Corp.

"It really is pretty wild," Singleton said. "It's like wildcatting (for oil) at the turn of the century."

The CIO plans to migrate the sites from Windows NT to technologies from Sun Microsystems Inc., NetDynamics Inc. and Netscape Communications Corp., including some Java-based software. He said he believes that that environment is probably more open to integration with outside systems. The sites will be hosted by UUnet Technologies Inc., a subsidiary of MCI WorldCom Inc. in Jackson, Miss. □

GM readies fast fiber net

By Bob Wallace

GENERAL MOTORS CORP. is bringing together workers at seven major locations in southeastern Michigan to consolidate engineering and get vehicles to market in 12 months — as opposed to 18 — while cutting costs.

And the automaker last week said it's banking on a new, hair-thin fiber-optic network to carry the tremendous traffic load generated by thousands of employees at sites that use bandwidth-demanding applications.

"The network will make our engineering collaboration more efficient by letting us do it electronically," said GM CIO Dennis Walsh. Today, the process includes ferrying tapes between locations. "We'll be able to share [computer-aided design] files between sites."

When it goes live late next month, the network also will carry traffic from SAP AG, PeopleSoft Inc. and data warehousing applications. The 2.4G bit/sec. network will replace 1.5M bit/sec. lines. Electronic Data Systems Corp. is installing and will manage the GM-designed network. GM declined to specify the network's cost. □

Believe it or not, Web stores *can* make money

By Sharon Machlis

WITH SO MUCH attention these days riveted on high-flying Internet firms still awash in red ink, it's easy to get the impression that electronic commerce remains a money-losing business.

But that's wrong.

A growing number of mainstream retailers say their Web stores are becoming profitable. "This is the year we have started to see the leaders head into the black," said Kate Delhagen, an analyst at Forrester Research Inc. in Cambridge, Mass.

For example, Recreational Equipment Inc.'s REI.com, launched in 1996, will finish this year with a profit, said Matt Hyde, director of online sales at the Kent, Wash., outdoor goods retailer.

And Disney Online was in the black the past four quarters. "We have definitely got ourselves a viable business," said Russ Gillam, vice president of electronic commerce at Buena Vista Internet Group in Burbank, Calif., the venture that manages stores for Walt Disney Co. and its ESPN subsidiary.

REI and Disney wouldn't disclose the actual profit figures for their Web stores.

In fact, almost one-third of the 100 companies Forrester surveyed last month — many of them brick-and-mortar retailers that jumped onto the Internet relatively early — said their Web sites are profitable.

Barnesandnoble.com made news last month by losing money while its physical-world sister company turned a tidy profit. But the New York-based bookseller is waging a fierce battle with an exceptionally successful Internet competitor, Amazon.com Inc. That has forced Barnesandnoble.com into an expensive dogfight to recapture online market share.

In general, though, analysts said other well-established retail brands have been able to capitalize on their names to draw consumers to their sites without paying for costly portal partnerships that many new Internet-only firms have used to build name recognition.

A lot of retailers have said doing business online is more expensive than they first estimated. But they're learning to keep costs under control, especially by touting their Web sites in advertising for their stores and catalogs.

Successful Web ventures have been clever in utilizing existing IT and fulfillment infrastructures. That's particularly true for those that have major catalog operations and that were already well-versed in handling out-of-store orders, said John Jordan, director of electronic-commerce research at the Ernst & Young LLP Center for Business Innovation in Cambridge, Mass.

"I think you do have the recipe for companies to be profitable long before they're expected to be," he said.

In some cases, he added, the bottom line may be artificially high because the Web store uses existing corporate resources that aren't charged to the Internet venture.

Also, some Web sites deal in higher-margin merchandise, Jordan said, noting that an Eddie Bauer sweater is likely to be more profitable than commodity items such as books. It's no accident, he said, that Amazon.com's new holiday gift shop features high-profit items such as Dilbert dolls and PalmPilot handheld devices. □

Hackers 'spoof' *Computerworld*

AMERICA ONLINE INC. users last week got a surprise: E-mail promoting pornographic Web sites ostensibly from *Computerworld Philippines*, a *Computerworld* sister publication.

Via a technique called "spoofing," the unidentified senders created message headers that made it seem as if the originator of the E-mail was the Philippine publication's Web address, *www.computerworld.com.ph*.

Tom Lamoureux, Computerworld Inc.'s director of support services, said the hackers relayed the spam through servers at four U.S. universities. Lamoureux said his team is working with the colleges to find out who actually sent the E-mail.

The messages ultimately pointed to *www.tripod.com*, an online community site, he said. A Tripod spokesman said posting pornographic content is against company policy.

— Tom Diederich

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Users on fence in Sun-Microsoft battle

▸ *Java suit makes appearance in antitrust trial*

By Patrick Thibodeau
WASHINGTON

INSIDE THE FEDERAL courtroom here, the battle between Microsoft Corp. and Sun Microsystems Inc. over the future of Java is a hot topic. But outside the court, users such as Dan Mushrush are hedging their bets on which company will win.

Java came to the forefront of the antitrust case last week with the testimony of James Gosling, the creator of Java and a Sun senior vice president. He accused Microsoft of working to fragment the community of Java users and developers.

INJUNCTION

Gosling also has testified in Sun's lawsuit, accusing Microsoft of breaching its Java license contract — a case that already has had an impact on Microsoft. In a preliminary injunction on Nov. 17, a U.S. district judge in California ordered Microsoft — pending the outcome of the case — to include a Java version in the developer's kit that will pass Sun's compatibility test.

Mushrush, director of new technologies at Service Merchandise Co. in Brentwood, Tenn., doesn't know how these cases will affect his company — but he's preparing for any potential outcome.

Service Merchandise uses primarily Sun's Java programming language to develop applications for database access. But the retail chain also is using Microsoft's Java implementation for "defensive reasons," Mushrush added.

Steve Addison

James Gosling (left) accused Microsoft of trying to fragment the Java community, while Service Merchandise's Dan Mushrush (below) says the company uses both Sun and Microsoft versions of Java "for defensive reasons."

"We try to stay at least smart in the Microsoft world — just in case that's the winner down the road," he explained.

UNDER THE INFLUENCE?

Mushrush isn't alone: Not many users are likely to dismiss Microsoft's Java influence, said Ann Thomas, an analyst at Patricia Seybold Group in Boston. "They are all feeling constrained by Microsoft's power," she said.

But the most powerful person at Microsoft was once again cast in an unflattering light by the government last week. A 30-minute excerpt of videotaped testimony from Bill Gates showed the Microsoft chairman and CEO professing little knowledge of the Sun lawsuit. Gates also was evasive about a May 1997 memo from Java development team head Ben Slivka about an upcoming version of Java "which we're going to be pissing on at every opportunity," he wrote.

That led Gates into a lengthy back-and-forth discussion with David Boies, the lead government attorney, over the meaning of "pissing on."

"He might mean that we're going to be clear that we're not involved with it, that we think there's a better approach," Gates suggested.

Microsoft argued that cross-platform use of Java requires developers to write for a base set of features available on all platforms — leading to trade-offs in application performance, functionality and integration. When developers write for the "lowest common denominator," their applications may not be able to support more advanced or individual features in operating systems found, for instance, in graphical user interfaces, the company said.

But Ed Boyd, LAN manager for marketing and sales at Detroit Edison Co., said Java's performance loss is a fair trade-off with cross-platform capability. "If I have to slow a user down by a millisecond — is that worth my extra eight to 14 hours of writing two versions of something?" Boyd asked. "That millisecond isn't worth it."

Detroit Edison is using Java applications to access databases in its cross-platform intranet environment. Java applications that work off the lowest common denominator in platforms still get the job done, Boyd said. "Maybe I don't get a cute little three-dimensional button, but I still have the same functionality," he added. □

Gates: AOL/Netscape deal shows industry thriving

By Marc Ferranti
NEW YORK

MICROSOFT CORP. Chairman Bill Gates last week argued that the U.S. government's antitrust lawsuit against his company is a mistake because the Windows operating system's PC dominance isn't assured.

The fact that America Online Inc. is paying about $4.2 billion for Netscape Communications Corp. shows that Microsoft's competitors, who are vying to reach the public with new, easier-to-use technology, can still create value for themselves and the industry, Gates said.

Gates cited the AOL/Netscape deal during remarks at The Manhattan Institute think tank. He said that users' improved technology demands will drive innovation and competition for Microsoft's Windows.

"Even if we call it Windows, the code in there will have to change dramatically," Gates said. People will have much higher standards for computing technology, he said, expecting things such as speech recognition and more readable formats for computer-generated text "where you don't get a lot of strange error messages."

Gates defended Microsoft's decision to incorporate its Internet Explorer browser into Windows for free and pointed to AOL's impending purchase of Netscape — which also started to give away the Navigator browser — to show that a competitor may thrive by doing the same thing.

"Certainly now with AOL paying billions of dollars to buy Netscape, the notion that you [can] stay in business when the browser is free because other revenue sources make it a fantastic business — and [the question of whether] they have access to distribution channels to allow them to get their product out there — that's been answered very resoundingly," he said. □

Ferranti writes for the IDG News Service in New York.

Sun to loosen Java development process

▸ *But HP-led group pushes its own proposal to standards body*

By Carol Sliwa

SUN MICROSYSTEMS INC. this week expects to announce its new, more open process for developing Java specifications. But that plan isn't expected to appease a Hewlett-Packard Co.-led maverick group that last month chose to go its own way.

Under the new plan, Sun will let companies, organizations and individuals that haven't licensed Java — including vendors that have implemented independent virtual machines — get in on the process of developing Java specifications by signing a renewable participation agreement for a fee. That plan was partly intended to rein in wayward embedded systems vendors [CW, Oct. 19].

But HP's embedded software division and at least 18 other companies — including Microsoft Corp. and Siemens AG — are moving forward on their own real-time extension to the Java platform. The real-time extension is critical for Java to work in embedded devices, such as medical monitors and robotic arms, that need to be able to predict when certain events stop and start.

The HP-led Real-Time Java Working Group submitted a proposal to the National Committee for Information Technology Standards (NCITS), which has worked on standards for other popular programming languages.

Last week, the NCITS approved the creation of a new technical committee to work on the real-time Java specification. NCITS members have 30 days to vote by mail whether to accept the real-time project.

Sun has an open invitation to join that NCITS process, said Jim Bell, general manager of HP's embedded software operation. "We are ready to meet with [Sun] any time, any place to discuss any proposals they have," Bell said. Instead, Sun has stated its intention to work on a real-time extension to Java with other vendors through its new process.

That has fanned end-user concern about the fracturing of Java [CW, Oct. 19 and Nov. 9].

Several vendors have complained about the level of control that Sun will have even in its new, more open process. Under the plan, a Sun group will oversee development of specifications and select the companies or individuals that will lead various Java specification processes, write the reference implementations and produce the compatibility test suites.

But Sun executives have said that they're entitled to that level of control because Sun invented Java and that such control is necessary to produce standards quicker than any standards body can. □

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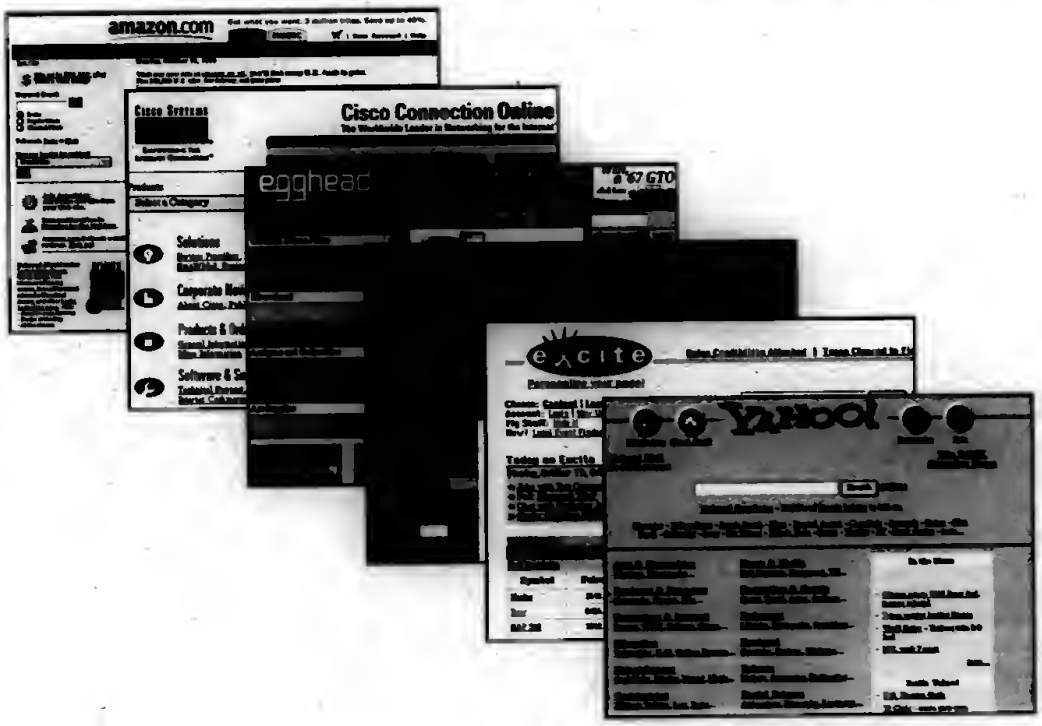

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Users in no rush to do Java upgrade

▸ *Sun support is three to six months away*

By Carol Sliwa

CORPORATE USERS may welcome Sun Microsystems Inc.'s launch this week of a new version of its soon-to-be-renamed Java Development Kit (JDK) — the technology and tools that help developers build Java programs and make the Java code run on end users' systems.

But many users said they won't be rushing to use the long-delayed JDK 1.2 technology, which features a new permissions-based security model, improved graphical user interface components, enhanced print capabilities and prebuilt code for building two-dimensional images.

"I don't see that there's an overriding reason right now to move explosively to it," said John Melka, senior manager of IS tools at NationsBanc Services Inc. in Chicago.

"We'll be taking a look at some of the applications and see how well they run under it and then begin migrating. . . . I want to make sure that when we deploy it that the impact to the existing applications is minimal," he said.

The Sabre Group in Fort Worth, Texas, needs its Java application for booking airline reservations to be able to run on thin clients. "We would be interested in moving to [JDK] 1.2 if the devices that we need to run on would support it," said Noreen Henry, a senior development director at Sabre, a travel and transportation technology division of AMR Corp.

STAGGERED SUPPORT

Vendor support for JDK 1.2 will be staggered over time. Sun, for instance, doesn't expect to support JDK 1.2 in its products for three to six months, a Sun product manager said. IBM will have an alpha release of the JDK for its AIX 4.3.2 platform within 60 days, but it doesn't expect to fully support the JDK in all its products until next fall, a company spokeswoman said.

Microsoft Corp. has no plans to use every new component in Sun's JDK 1.2 since it already has done its own implementations for most of the new elements, group program manager Charles Fitzgerald said. "Been there, done that," he said.

For many users, Java support in the browsers from Microsoft and Netscape Communications Corp. is a major issue. They can opt to deliver the new JDK's runtime environment to end users via Sun's Java Plug-in. But many don't like to have users downloading software over the Internet, even if it can be done somewhat painlessly.

"We try to avoid plug-ins wherever possible," said Chris Baggett, assistant vice president of Web development at First Data Merchant Services Corp., a merchant credit-card processing center in Hagerstown, Md.

NO WORRIES

"We deploy all across the U.S. and internationally, and we don't want to have to worry about maintaining any software" other than the Java application that more than 1,000 banks and credit-card merchants are using for credit- and debit-card processing, he said.

Some Java users have done work-arounds to add new functions that weren't available in JDK 1.1 to their Java applications. "Now they have to figure out how they're going to embrace the standard services that are in 1.2" that may match the functionality of those home-grown additions, said Tim Sloane, an analyst at Boston-based Aberdeen Group Inc.

Applications written to the JDK 1.1 specification should work with JDK 1.2 products, Sun product line manager Rick Schultz said.

Sun's testing revealed few incompatibilities in JDK 1.1-based programs running in the JDK 1.2 environment, and details about any exceptions are posted on Sun's Web site, he said. □

Updated Java Development Kit 1.2 includes:

- **Security enhancements:** New concepts of permission and policy let the JDK offer access control for applets and all code written in Java, including applications and beans
- **Swing:** New set of graphical user interface components
- **Java 2D:** Set of classes for advanced two-dimensional graphics and imaging
- **Drag and drop:** Enables data transfer across applications
- **Java IDL:** Adds Common Object Request Broker Architecture capability to the Java platform

Arena of JavaBeans permeates server offerings

Application servers will continue to flood the marketplace at this week's Java Business Expo in New York.

New offerings from Ingrian Corp., Information Builders Inc., Persistence Software Inc. and Secant Technologies Inc. all promise to support Enterprise JavaBeans — components that reduce the amount of code developers need to write for server-based applications.

Bluestone Software Inc. will announce its new XML Server, a pared-down, entry-level version of its Sapphire/Web application server that can read and write the Extensible Markup Language (XML) and that also supports Enterprise JavaBeans. The product will ship next month. It will cost $6,995 per processor.

Information Builders' new Parlay application server and Persistence's PowerTier also will support Sun Microsystems' new JDK 1.2.

KL Group Inc. plans to release JClass 3.6, a JavaBeans suite that supports JDK 1.2, and JClass SwingSuite, a set of enhancements for JDK 1.2's Swing graphical user interface components. KL Group also will announce a new version of its JProbe Profiler tool that helps developers eliminate memory leaks in Java.

— Carol Sliwa and David Orenstein

Employers target U.S. to plug IT gaps in Europe

By Barb Cole-Gomolski

WESTERN EUROPE IS having its own IT labor drought, which is adding to the staffing woes of U.S. companies.

In many ways, European companies are even more desperate for information technology professionals than their American counterparts because they are struggling with European currency conversion projects on top of year 2000 work.

For multinational companies, the shortage overseas means exporting already-scarce American IT labor to foreign divisions.

"The IT labor situation is bad over here," said Klause Elix, chief technology officer at American Management Systems in Dusseldorf, Germany. Elix said European companies tend to leave IT jobs open if they can't find the ideal candidate because "it's very difficult to get rid of someone once you hire them on."

Deloitte & Touche Consulting Group recently implemented a global exchange program in which the firm's top performers get a shot at an overseas assignment that might last a few years.

DUAL BENEFITS

The program helps consultants get much-needed international experience but is also helping to fill positions in a tight European labor market, according to Jason Hanold, director of national leadership and technical recruiting. "Sending someone to work in Europe basically doubles your [labor] cost" because expenses for lodging, meals and travel are covered by the company, said David Cowen, president of Fanning Technical Search Inc., a New York IT staffing firm that works with multinational banks, law firms and brokerages.

Strapped European companies are also trying to tap the U.S. for IT workers, said Reynold Lewke, a principal in the Palo Alto, Calif., office of Egon Zehnder International, an IT staff recruitment firm. "Companies looking for a world-class CIO look here," Lewke said. But European companies have a hard time matching the compensation packages that U.S. companies offer top IT professionals, he added.

In a report issued last week, the European Commission urged member countries to improve their IT literacy rates. The report cited a recent study by International Data Corp. in Framingham, Mass., a sister company of *Computerworld*, which said Europe has about 500,000 IT job vacancies.

The study projected that figure could grow to 1.2 million job vacancies by 2002 unless there are education reforms that boost the number of computer-science students. There is also evidence that those companies that can find IT workers in Europe will be paying more for them soon.

A survey of 100 European companies found that about half plan to boost IT salaries by 10% to 20% next year because of the tight labor market, according to results published last week by Meta Group Inc. in Stamford, Conn. □

European labor pains

- **Less than 40% of European companies offer cash bonuses to IT workers, but more than 90% of American companies do**
- **European companies expect to boost IT salaries by 10% to 20% next year because of the IT labor shortage**
- **More than 50% of survey respondents report turnover rates of less than 2%, while one-fourth say turnover is between 6% and 20%**

Base: Survey of 100 European companies

Source: Meta Group Inc.'s 1998 European IT Staffing and Compensation Guide

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[1] Source: Data during this time frame: Jan. 1–June 30, 1998. EMMS, Sept. 4, 1998. [2] Source: The Radicati Group, July 1998.
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Palm, other handheld advances worry managers

▸ *Management, security issues follow wireless technology*

By Matt Hamblen

HANDHELD WIRELESS computing took modest steps forward last week, but corporate managers said they worried that the innovations will be costly and create headaches for getting users through corporate firewalls.

"On the surface, wireless handheld computing sounds like nirvana, but when it comes down to implementation, it is more than likely not what [vendors] say it will be," said Peter Mojica, vice president of research at the capital markets division of the First Union National Bank in Charlotte, N.C.

Last week's biggest announcement was the Palm VII connected organizer from Palm Computing Inc., a subsidiary of 3Com Corp. in Santa Clara, Calif. The organizer is the same size as the previous version, the Palm III. The Palm VII features a flip-up antenna and has a radio card inside. (Eventually, versions IV, V and VI will come out.)

The Palm VII will sell some time next year for less than $800, with Internet access starting at $10 per month, enough to pay for six short messages or Web "clipping" (rather than browsing) sessions a day, Palm officials said.

Trials of the device will start with 600 users early next year using the BellSouth Corp. wireless network and a wireless service from Palm called Palm.Net. It provides access to corporate data from 200 major cities.

"MIS is nervous about wireless because of security and mobility management," said Roberta Wiggins, an analyst at The Yankee Group in Boston.

But analyst Alan Reiter at Wireless Internet & Mobile Computing in Chevy Chase, Md., said Palm's announcement shows that wireless computing is "ready for prime time," especially atop Microsoft Corp.'s announcement to create Wireless Knowledge LLC, a wireless service company, with Qualcomm Inc. [CW, Nov. 16].

Growing acceptance of wireless computing will force network managers to develop company policies to restrict personal use and cut costly airtime, which usually is based on the number of characters sent in a data message, analysts predicted.

Palm officials said the Palm VII won't be a true E-mail access device because such files can be enormous and users have a need for short messages, including stock quotes and weather reports.

One IT manager, Andrew Palms at the University of Michigan in Ann Arbor, said he already contracts for pager service at a flat rate for unlimited usage and is in the midst of setting usage policies. Palms said a "wireless Palm would be great" for the times he is locked in a meeting and needs to send a question to a staff member outside.

IN OTHER NEWS

Also announced last week were the following:

- Sunnyvale, Calif.-based DataRover Mobile Systems Inc.'s DataRover 840, a wireless handheld that costs $1,095. The Norfolk, Va., Parking Service announced it has begun using 13 of the rugged handhelds to automate parking ticket writing. Fitne in Athens, Ohio, has deployed 200 for 25 nursing schools to let student nurses document treatment for homebound patients and communicate with their teachers, officials said.
- Dallas-based JP Systems Inc.'s NetCradle, a cradle for Palm users to insert Type II laptop PC radio cards for Internet browsing and corporate database access. □

MORE ONLINE

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www.computerworld.com/more

How J.D.Edwards SCOREx is helping Metawave give cellular operators more airtime.

SCOREx

The cell phone business keeps Metawave hopping. They've gone from startup to star by supplying cellular giants with vital technology that packs more calls into limited airtime.

To run a supply chain that's as nimble as their fast-growing business, Metawave looked to J.D.Edwards SCOREx (Supply Chain Optimization and Realtime Extended Execution), supply chain software. A J.D.Edwards SCOREx supply chain is more efficient and more responsive because J.D.Edwards fully integrates order, delivery and customer service management.

J.D.Edwards SCOREx is easy to install, too. Integration partner Ernst & Young took Metawave from zero to sixty in less than six months. For Metawave CFO Vito Palermo, the biggest improvement has been in responding to customer requirements. "J.D.Edwards SCOREx has given us the ability to be responsive to the dynamic changes in the global wireless communications market," says Palermo. That's how it ought to be. It can be for you, too. To find out more, call 1-800-727-5333 or see www.jdedwards.com/customer.

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*2,599,200 transactions per hour, to be exact, and with 1000 & 2000 concurrent users. These measurements were done in a customer benchmark of Forté on OS/390 version 2.5 using UNIX System Services.

FRANKLY SPEAKING

Top not always cherry

FRANK HAYES

NOW, APPARENTLY, is the winter of our discontent. OK, with highs in the 50s, it may not feel much like winter. But according to a fistful of surveys in the past few weeks, there's more than enough discontent among IT people to make up for the lack of snow.

And the unhappiness starts at the top.

Item: Quality is dropping. In Computer Sciences Corp.'s annual survey of 594 IT executives, 66% of CIOs said technology users in their companies rate their information systems as average instead of good or excellent. Last year it was 55%.

Item: Budgets aren't growing much. According to the CSC survey, IT budgets increased 6.2% this year — just about the same as the 6% rise last year.

Item: CIOs don't get access to top decision-makers. Head-hunting firm Korn/Ferry International surveyed IT directors at 340 companies and found that they interact more frequently with the COO and the CFO than with the CEO, and less than half of the CIOs were on their company's internal board.

Item: CIO still means "Career Is Over." Again from Korn/Ferry, only 29% of U.S. CIOs figure they'll ever have a shot at becoming CEO.

You don't need pixie dust. You need business cred.

Item: In an unscientific poll, 42% of CIOs who took *Computerworld*'s Online Salary Satisfaction Survey in September and October said they were unhappy with their compensation, given the amount of work the job entailed.

Item: When IT staffing firm RHI Consulting surveyed 1,550 CIOs, a stunning 79% said they'd be "very likely" or "somewhat likely" to bail out of their corporate IT jobs to become consultants if the right offer came along.

That's a lot of CIO discontent. And here's the news, folks: It's not going to get better magically. Nobody's going to reach down from the executive suite and sprinkle pixie dust to brighten your life, beef up your budget and improve your career path.

You don't need pixie dust. You need business cred.

Let's face it, we've all met IT chiefs who don't have that trouble getting the boss's attention. They don't seem to stumble over making the business case for new systems. They're not dismissed by other executives as merely technical specialists.

In short, they've got business credibility.

Some CIOs with business cred aren't really technical. That's what they'll tell you — "I'm not really technical" — just before they swamp you with all the jargon, acronyms and tech talk any propellerhead could want.

Oh, they're technical, all right. But whether they came up through the IT ranks or became CIOs after jobs running sales or finance, these technology bosses aren't *just* technical.

They've got a vision of the business. They can articulate that vision to other businesspeople. And they can map technology to that business vision.

That's where business cred comes from. And if, as CIO, you don't have that business vision for your company, you've got bigger problems than just discontent. If you're thinking only in terms of technology or even users, you're failing to do your job.

Because your company needs that business vision just as much as your career does. Without the big-picture view of the business opportunities your company faces, you can never deliver what technology promises.

You don't want to be a business visionary? Fair enough — go grab that consulting job, and good luck to you.

Otherwise, get yourself some vision and some business cred. Because nobody benefits when you don't have the focus, the credibility and the clout you need to make the most of IT. And without it, that discontent is going to make it a long, cold winter. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

SHORTS

Cabletron expects loss

Cabletron Systems Inc. last week said it expects to take an operating loss of 10 cents per share for the quarter ended Nov. 30 based on sales of about $330 million. In the same quarter last year, Cabletron posted a $19.9 million profit on revenue of $331.8 million. Final results will be announced Dec. 21.

Postal Service delays E-service

The U.S. Postal Service will delay its planned testing of an electronic mailing service for small and mid-size direct marketers until at least next July because of technical problems, according to reports last week. The service would handle printing, distribution and payment for a mailer's materials, all via PCs and the Web.

Computer training on rise

U.S. companies will spend $60 billion this year training their employees, and much of that training is being done via the Web, according to a report published last week by Framingham, Mass.-based International Data Corp., a sister company to *Computerworld*. The report said the market for technology-based training systems has grown 40% annually in recent years.

Corel settles suits

Corel Corp. in Ottawa settled two legal disputes last week. In one, the graphics and office suite maker agreed to pay Hedy Lamarr for its use of a likeness of the actress in its packaging. Corel also settled with Micrografx Inc. in Richardson, Texas, which claimed that Corel infringed a copyright with its greeting-card software. Neither settlement's terms were disclosed.

EDS vice chairman to leave

After nearly 30 years at Electronic Data Systems Corp., Vice Chairman Gary Fernandes said he has decided to retire from the world's No. 2 information technology services and consulting firm by year's end. Fernandes, 55, joined the company as a systems engineer in 1969. Analysts said Fernandes had wanted to replace Les Alberthal, the company's chairman and chief executive officer, but EDS's board of directors quashed those plans.

CONTRACT OF THE WEEK

Customer: Freightliner Corp., Portland, Ore.

Prime contractor: Debis IT Services North America, Chicago, a unit of DaimlerChrysler Co.

Terms: $70 million, five years

Highlights: Debis will provide systems and support for more than 500 Freightliner truck dealerships. The outsourcer will migrate the dealers' client/server systems to more flexible, Web-based technology.

CA to unveil 'neugent' 'nology

Computer Associates International Inc. this week plans to announce its so-called "neugent" technology, which is supposed to add self-management capabilities to CA's Unicenter TNG enterprise management software. The technology consists of neural network agents that try to detect and snuff out potential performance problems. CA, in Islandia, N.Y., said the technology eventually will support its Jasmine and Openingres databases (CW, Feb. 9).

SAP to add Java support

At its European developers conference in Germany this week, SAP AG will announce plans to add server-level Java support to its R/3 applications. But SAP officials said the support probably won't be available until 2000. The Java support would let R/3 users, and potentially SAP itself, write new or add-on applications in Java instead of SAP's complex ABAP language.

SHORT TAKES The Italian Antitrust Authority decided last week to launch an investigation into Microsoft Corp.'s business practices in Italy after a group of vendors and users there filed a complaint against the company in October. . . . Netscape Communications Corp. this week will spell out detailed plans for its new browser engine, giving it a name and demonstrating its capabilities at the Builder.com show in New Orleans. . . . President Clinton last week directed the Federal Trade Commission to find ways of extending consumer-protection regulations to electronic commerce. Clinton also called for the Commerce Department and Federal Communications Commission to develop higher-speed home access to the Internet. . . . Packaged applications vendor J. D. Edwards & Co. last week reported a $37.7 million profit for its fiscal fourth quarter ended Oct. 31. That was up 65% from $22.8 million in the same quarter a year earlier. . . . NEC Corp., as part of a restructuring of its U.S. chip operations, will shed 400 workers, the company said last week. The employee cuts will be spread throughout NEC Electronics, including the U.S. subsidiary's Santa Clara, Calif., head office, nationwide sales staff, and manufacturing facility in Roseville, Calif., NEC said in a statement. . . . Inprise Corp. in Scotts Valley, Calif., has bought Apogee Information Systems Inc., a Marlboro, Mass.-based integration and consulting firm.

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Banks turn to IT to reclaim most profitable customers

By Thomas Hoffman
LAS VEGAS

IN THEIR struggle to hold on to customer "wallet share," savvy bankers are leaning on data mining and other technologies to stem the flow of money to mutual funds and online stock trading.

"Customers vote with their wallets every day, and they're voting for mutual funds and other nontraditional bank products," said John McCoy, chairman and CEO of Chicago-based Bank One Corp. McCoy was a keynote speaker at last week's Bank Administration Institute Retail Delivery '98 conference here.

Analysts said that, 20 years ago, U.S. banks held more than 50% of household deposits, but that figure has slipped to less than 25% today.

Bank One CEO John McCoy said the bank's partnership with Microsoft to provide electronic bill payment services "should help us add 500,000 customers"

DIGGING INTO DATA

To help steer their most profitable and affluent customers to their own investment offerings, banks such as First Union Corp. and Royal Bank of Canada are using sophisticated data mining systems to identify those opportunities.

That's important, because more than half of all U.S. retail banking households are actually unprofitable for the banks, while the top 10% of their customers produce $700 to $800 in annual profit per household, said Seamus McMahon, executive vice president at First Manhattan Consulting Group, a New York-based financial services consultancy.

Royal Bank of Canada began using a data mart in 1993 to help it segment its customers by profitability and to cross-sell banking products to them. Using the system, the bank boosted the profitability of more than 1 million of its customers by an average of $100 per customer over three years, said James T. Rager, executive vice president at the Toronto bank.

Using a data warehouse, First Union discovered that half of its unprofitable customers would be profitable if fees weren't waived from the banking products they were sold, said Jack M. Antonini, executive vice president at the Charlotte, N.C., bank. He said First Union is now contacting those customers to see if they would be willing to pay for those services or move to more profitable products.

In other instances, banks are using technology to simply make their services more convenient to customers. FirstStar Corp., a $38 billion bank in Cincinnati, uses software that remembers the amount of a customer's previous withdrawal from its automated teller machines and immediately offers that figure during the next withdrawal, said Jerry A. Grundhofer, chairman, president and CEO of the bank.

Still, technology has its limits. Online banking, for example, can sharply cut transaction costs, but it needs to be a high-volume operation to amortize the investment.

Yet gaining online banking market share is tough because "there's very little differentiation" between PC banking, said Kathleen McClave, managing director at Furash & Co., a Washington-based consultancy. □

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www.computerworld.com/more

Systems and Technology CEO Mike Emmi (left) hosted an effort to make Philadelphia more attractive to IT workers

Regional groups seek to woo tech workers

By Barb Cole-Gomolski

FED UP with the lack of available information technology workers, a group of executives, academics and civic leaders from Philadelphia met last week to develop a plan to improve the IT talent pool.

Such efforts are increasingly common as employers and local officials look for ways to make their regions more attractive to IT workers.

"Right now, Philadelphia is a great exporter of IT talent," said Mike Emmi, chairman and CEO of Systems and Technology Corp. (STC) in Malvern, Pa. The software and outsourcing company hosted the event in conjunction with Greater Philadelphia First, an economic development group.

Even though the area is home to more than 80 colleges and universities, "not enough [IT students] stay in the area after graduation," Emmi said.

The labor drought and, a disconnect between college courses and IT jobs have forced STC, which added about 1,200 workers last year, to spend big on training, Emmi said.

Other cities have tried to make themselves more IT friendly. For instance, business and city leaders in Duluth, Minn., have pledged $30 million to build a large office complex for high-tech companies, hoping to draw tenants interested in the rich crop of IT graduates from the nearby University of Minnesota.

Separately, the Industrial Management Council of Rochester, N.Y., has a Web site (*www.smartdog.org*) that includes job postings and a service for matching applicants to IT jobs in the area.

At the Philadelphia gathering, much of the focus was on getting businesses and area colleges to forge tighter links. The group discussed having IT workers from area businesses act as advisers to colleges. It's also considering a cooperative work program in which IT professionals would teach college courses on a temporary basis and professors would work in IT jobs.

Participants may also fund scholarships for computer science students who agree to work for an area employer upon graduation.

Alex Godin, president of the Delaware Valley Technical Recruiters Network, applauded the group's efforts. He said Internet-based recruiting has helped many area employers draw applicants from outside the region, but there is still a shortage of available talent. □

Dell steps up to high-end storage

▸ *Direct sales model may give it an edge*

By Nancy Dillon

BACK IN JUNE, Dell Computer Corp. announced its entrance into the enterprise storage market. Today, the company is adding some tangible bite to its storage bark.

Today's announcement includes the PowerVault 200S and the PowerVault 130T. The 200S is an external storage array that can support up to eight Ultra2 SCSI drives. Users can configure four 200S units in a single array for a maximum capacity of 576G bytes. The 130T is a digital linear tape (DLT) library that can support up to four DLT drives and hold up to 30 tape cartridges.

Both the 200S and 130T will join the 650F Fibre Channel RAID array in the PowerVault enterprise line. The 650F is made by Data General Corp. in Westboro, Mass., and the new 130T tape library is from Storage Technology Corp. in Louisville, Colo. Officials at Round Rock, Texas-based Dell said the new line will rely on other companies' products for some months yet. Storage products developed by Dell are expected late next year.

The new 200S and 130T "represent a necessary step for Dell's storage initiative," said Anders Lofgren, an analyst at Giga Information Group in Cambridge, Mass. "But they are not new user options. They were available before, just under different brand names." Lofgren said he expects Dell's contribution to be "very low pricing."

Pricing is the ace up Dell's sleeve because the company's direct sales model saves money, analysts said. Enterprise storage customers "are very sophisticated. They don't need a salesperson or reseller every time they go to add 100G bytes of [storage]," said David Hill, an analyst at Aberdeen Group Inc. in Boston. That makes Dell's direct model a natural fit for incremental enterprise storage sales. But Hill warned that Dell's sales model isn't enough to put Dell storage products in league with the market leaders.

He said customers who need advanced options such as snapshot copy or remote mirroring are still better off with a company that's stronger on storage software, such as IBM or EMC Corp.

"And Dell is only supplying for its own platform right now," Lofgren added. "Serious storage vendors have to offer multiplatform support, including support for Unix." □

Archiving moves to high-speed tape. Page 55

Looking for Mr. Mainframe: New apps seek power

▸ *Forte, others offer OS/390 support, expanded Web access*

By David Orenstein

COMPANIES HISTORICALLY have not needed to run highly abstract component-based programs on mainframes, but that's changing.

MAINFRAME APPLICATIONS

Some users are seeking to marry the benefits of component-based applications — which are faster to develop and more reusable than traditional mainframe-based programs — with the scalability and reliability of big iron.

That's why Oakland, Calif.-based Forte Software Inc. last week joined other component-based application-development vendors — including Compuware Corp. in Farmington Hills, Mich., and IBM — in offering a version of its application server for the OS/390 mainframe.

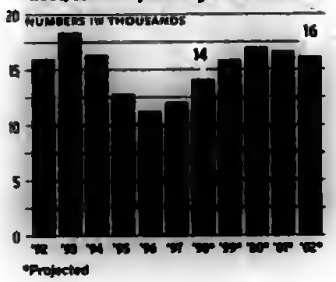
"We were driven to do this ... by customers asking us to do it," said Forte CEO Marty Sprinzen. "We have seen customers come onboard who would not come onboard if we did not have a mainframe offering. Their clear plans are for deployment on the mainframe."

KILL THE COBOL

Many companies want to continue to use mainframes but would rather develop new applications in something other than Cobol, said David Kelly, an analyst at Hurwitz Group Inc. in Framingham, Mass.

For example, USAA Insurance Co. plans to deploy some Web-based customer service applications on OS/390 using Forte, said Bill Burroughs, assistant vice president of IT solutions at the San Antonio insurer.

Worldwide installed base, IBM mainframe host/server operating environments



Source: International Data Corp., Framingham, Mass.

Most of USAA's contacts with customers now are over the phone or by mail, Burroughs said, but the company wants to build Web applications to deal with customers in the future. Most of USAA's key data is on OS/390s, and the company believes the platform is the most reliable one to host the Web applications, he said.

To ensure Forte was reliable enough, USAA worked with IBM to simulate Forte applications on OS/390 servers with 2,000 Unix clients, Burroughs said.

The applications exceeded USAA's expectations, running at 384 transactions per second and never failing in 270 hours of extensive testing.

Forte's mainframe support will let the Forte-based software of health care insurance software vendor HBO & Co., in Atlanta, cover a full range of platforms, said Earl Kirkland, the company's vice president of product development. □

More-flexible chip sets to ease Intel upgrades

By Stewart Deck

INTEL CORP. has begun putting together a program called Transition Management to help users keep up with the seemingly endless parade of processor upgrades.

To do that, Intel will keep platform components such as memory interfaces and chip sets consistent even as system buses change.

One recent example of that is the 440BX chip set Intel introduced last March to support the 100-MHz system bus used by the 350-MHz and faster Pentium II series of processors. This chip set will be useful for a longer period because it is compatible with and will support the forthcoming Katmai processor. Katmai purchasers won't have to buy entirely new systems or replace core components such as motherboards, as they did when Intel went from 66-MHz bus speeds to 100 MHz.

Companies "just don't have the skills or available resources to be constantly qualifying new systems," and have been looking for such component stability, said Chris Goodhue, an analyst at Gartner Group Inc. in Stamford, Conn.

"If you're going to be the one buying those [Katmai] systems, the benefit is that there's less chance that the top-of-the-line that you're waiting for will be delayed," because dealers won't have as much older inventory to sell off before they bring in a lot of the latest models, said Tony Massimini, an analyst at Semico Research Corp. in Phoenix.

"A flexible chip set will also help manufacturers maintain inventory and not get stuck with obsolete parts," Massimini added. □

INTEL'S CHIP DEVELOPMENT

Year	Chip name (top speed)	Versions
1982	80286 (12.5 MHz)	4
1985	386DX (33 MHz)	4
1988	386SX (33 MHz)	4
1989	486DX (50 MHz)	3
1991	486SX (33 MHz)	4
1993	Pentium (66 MHz)	2
1995	Pentium Pro (200 MHz)	4
1997	Pentium II (300 MHz)	4
1998	Pentium II (450 MHz)	4

Source: Intel Corp., Santa Clara, Calif.

Novell denies reports on open code

By David Orenstein

NOVELL INC. has acknowledged that someday it could become desirable or necessary to open up parts of the source code for Novell Directory Services (NDS), but it said it has no immediate plans to do so, despite published reports to the contrary.

Analysts said there would likely be little demand among developers to tinker with the software at such a low level.

The Apache Web server and Linux operating system have increased the popularity of open-source software development, in which original code is freely shared among developers, who loosely collaborate to improve the software.

Following that trend, Netscape Communications Corp. has opened the code of the Mozilla core of its Navigator browser [CW, Feb. 24], and Microsoft Corp. recently acknowledged that it would consider opening some code in Windows NT [CW, Sept. 21].

Although Novell has submitted some open code to standards bodies and licenses open code to operating-systems vendors that incorporate NDS, the company wouldn't open code more widely unless it faced a groundswell of demand from developers, said Michael Simpson, marketing director at Novell.

"It's not like a Mozilla thing. The product is not very conducive to that because it is used for security," he said.

SECURITY ISSUES

But if developers aren't satisfied with the numerous application programming interfaces (API) that Novell provides to NDS, the company would consider opening up parts of it more widely, Simpson said.

But parts that would compromise the network security features of NDS would remain closed, Simpson said.

John Hart, director of MIS at the Chicago Mercantile Exchange, which is migrating to Novell's NetWare 5.0, said that in general, he would welcome open code for NDS because it would add to the development options available to programmers. But analysts said most corporate developers probably won't find much pragmatic use for open code.

Many companies are moving away from doing highly technical custom development work in-house, said Dan Kusnetsky, an analyst at International Data Corp., a research firm in Framingham, Mass., and a sister company to *Computerworld*.

Corporations also will be reluctant to part with the support they receive for NDS from Novell.

Once a company tinkered with the source code of a product, it would be difficult for the vendor to help them recover from mistakes, said Jamie Lewis, an analyst at The Burton Group Corp. in Salt Lake City. Most developers would prefer to use APIs, he said. □

Version 2.0 shipping

Novell Inc. last week announced that it has begun to ship Version 2.0 of Novell Directory Services for Microsoft Windows NT, which began beta testing in September.

The software, which lets network administrators centrally manage directory services even on heterogeneous networks, will cost $26 per user and $695 per NT replica or server.

Until February, NetWare 5.0 or 4.X users can receive a free server license for each NetWare server license they have.

The NDS for NT server license costs as much as an upgrade license of Windows NT, analysts noted.

— David Orenstein

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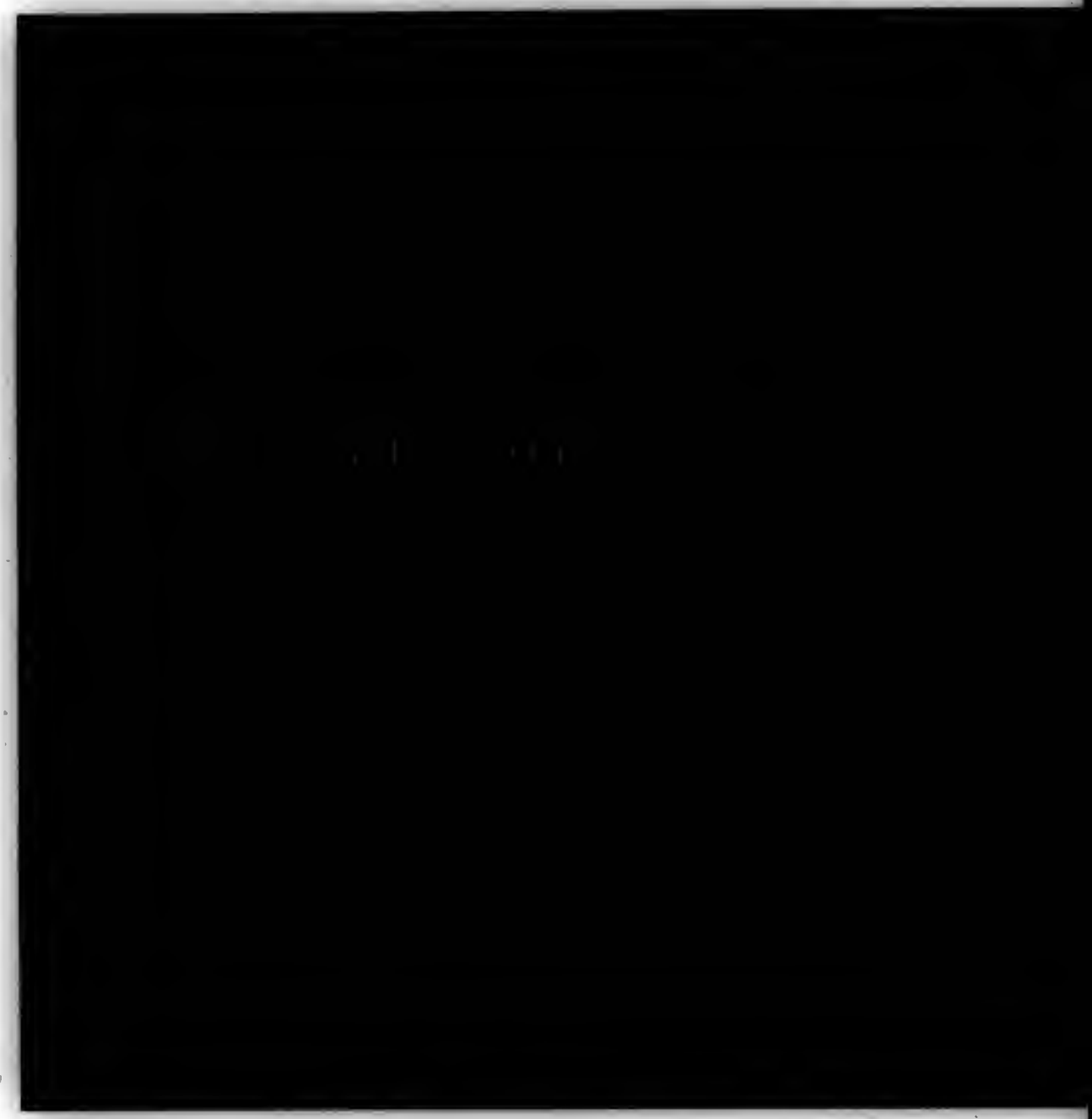

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Here come year 2000 liability woes

▸ Contractor not responsible for missing systems replacement deadline

By Kathleen Melymuka

THE FIRST legal liability decision in a year 2000 case raises a red flag for companies that are hoping to cure their millennium problems by replacing noncompliant systems.

In a decision last month, a court-appointed arbitrator ruled that a contractor didn't have to pay for repairing a user's old systems when the replacement systems weren't ready on time.

As part of a larger suit, INCO Alloys International Inc. in Huntington, W.Va., claimed that a five-year re-engineering contract signed in 1995 with ASE Limited, a systems integrator in Pittsburgh, should have resulted in new systems to replace those with year 2000 problems.

> The case highlights the need to be very specific about year 2000 obligations in a contract.
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But midway through the contract, INCO realized that ASE was behind schedule, meaning that INCO would still need to fix a good portion of its old programs.

INCO paid IBM $3.9 million to resolve the year 2000 problems and tried to get ASE to pay that amount in damages because of the alleged breach of contract.

William M. Wycoff, the arbitrator, denied the claim because year 2000 work wasn't specifically addressed in the contract. "Year 2000 remediation is not set forth ... as an articulated goal of the program," he wrote in his decision.

SAY WHAT YOU MEAN

Articulation is the key, Wycoff said, speaking as an attorney and not as arbitrator in the case. "If a claim is going to be made, people will have to have it understood and nailed down, and it's better if you have it in writing. As an afterthought, saying that the contract is not on time and now there's a Y2K problem, they'll have a lot of trouble," he said.

The case highlights the need to be very specific about year 2000 obligations in a contract, said Arthur J. Schwab, ASE's attorney in the case.

"Make sure that existing contracts are reviewed in light of Y2K issues, and new contracts need to be very clear," Schwab said, adding that there are no winners in year 2000 litigation. "The mere fact that one wins the case at the end doesn't eliminate the attorney's fees incurred to obtain that victory."

An INCO spokesperson wouldn't comment on the case. □

Note of caution sounded in European Y2K report

By Elizabeth de Bony
BRUSSELS

THE EUROPEAN COMMISSION has issued a report warning European Union member countries that efforts to bring systems in line with the year 2000 problem simply aren't sufficient. The problem is especially acute in the electricity and road transport sectors and at the level of local and regional governments.

The report also highlighted as areas of potential problems water and waste management, health and the food supply chain.

Although the report acknowledged that considerable effort has been made during the past year by central administrations as well as the air traffic, telecommunications and financial services sectors, it stresses that considerable uncertainty in Europe can be blamed on the total lack of information available about certain sectors and administrations. The U.K. is the notable exception to this lack of information, according to the report.

ACTION PLAN

The report sets out a list of action points for national administrations, including the need to monitor and report on progress in the energy sector and to exchange information about the readiness of transport sectors.

In the telecommunications sector, the report points out that operators in Sweden, Germany, the U.K., Norway and the U.S. are actively involved in intercarrier tests to check compliance, but that not all major EU operators are fully cooperating with this group of companies. The commission declined to identify which countries weren't cooperating fully.

The report also revealed that although most countries have specific year 2000 offices or programs that take an active role in coordinating and encouraging compliance efforts, ministries in Germany, Finland, Austria, Luxembourg and Portugal play mostly just an information exchange role. □

De Bony writes for the IDG News Service in Brussels.

Poll finds Y2K supply-chain concerns

By Rick Saia

YOU'RE CONFIDENT you'll be ready. But you have some doubts about your business partners.

That's the most striking finding in the second of a series of *Computerworld* year 2000 confidence surveys. This sample surveyed 205 information technology managers on Oct. 20-22.

Nineteen of 20 IT managers are highly confident that their companies will be ready for the year 2000 date change. But nearly two in five said they're very concerned about the readiness of their suppliers and customers.

Asked to rate their confidence in their companies' year 2000 compliance on a scale of 1 ("not at all confident") to 5 ("extremely confident"), all but nine responded with a 4 or 5. That's slightly better than the initial survey, conducted a month earlier, in which all but 10 (out of 203) registered a 4 or 5. But respondents raised doubts about their business partners.

When asked to rate their concerns about the year 2000 systems readiness of their suppliers and customers, 13% of the respondents said they were "extremely concerned" (rated as 5 on a scale of 1 to 5), while another 25% said they rated their concern a 4. Eight percent said they weren't at all concerned about their suppliers' and customers' readiness.

CONFIDENCE WANING

Bill Walker, information technology director at Frederick Gumm Chemical Co., a chemicals manufacturer in Kearny, N.J., said he sees a "high level" of concern among IT managers about millennium compliance up and down the supply chain. But based on his requests for information from his company's suppliers and customers, he senses that "they're pretty much on top of things," he said.

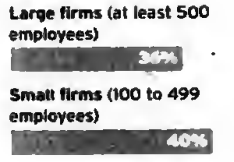
Another IT manager, Richard Oppenheimer at Factory Card Outlet Corp. in Naperville, Ill., said it may be too early to decide how compliant his company's suppliers and customers will be. But just in case some suppliers won't be ready, he said, his company is looking at alternative suppliers to help keep its business running in January 2000.

The survey also found an increase in pessimism among IT managers at larger companies (more than 500 employees) about the effect the year 2000 problem will have on the U.S. economy. Thirty-three percent foresee a significant, but not catastrophic, impact. That's up from 22% in the September survey (see chart at left).

That may be because of an increased awareness of how other countries are trailing the U.S. in millennium compliance, according to Lou Marcoccio, an analyst at Gartner Group Inc. in Westboro, Mass. IT managers now have "more information from a global risk perspective," he said. □

SUPPLY-CHAIN FEAR

Percentage of respondents very or extremely concerned with the year 2000 compliance of their suppliers' and customers' IT systems

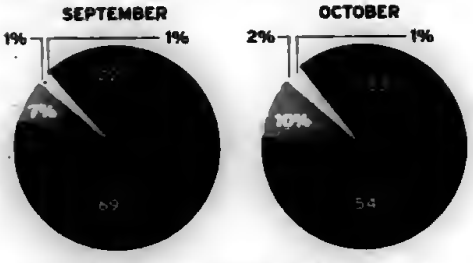


Base: 103 IT managers at large companies (at least 500 employees); 102 IT managers at small companies (100 to 499 employees).

Source: Computerworld Information Management Group, Framingham, Mass.

More pessimism at larger companies

Which of the following statements best describes the impact you expect the year 2000 problem to have on the U.S. economy?



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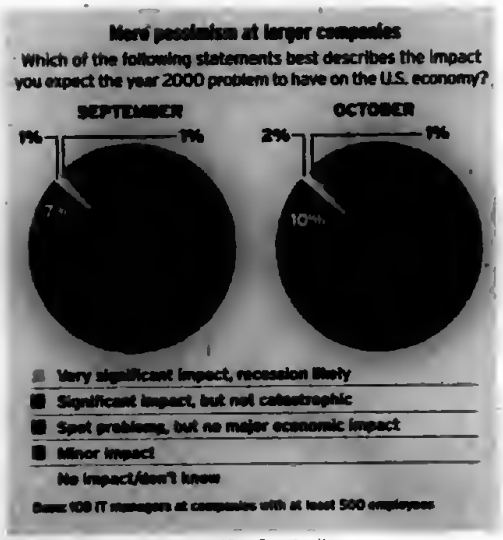
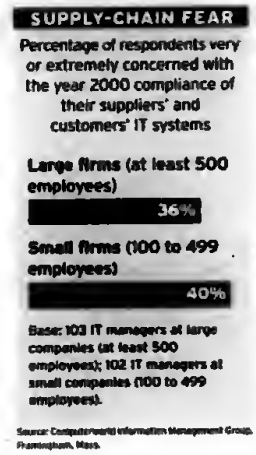

More pessimism at larger companies
Which of the following statements best describes the impact you expect the year 2000 problem to have on the U.S. economy?
SEPTEMBER
OCTOBER
1%
1%
7%
2%
9%
10%
Very significant impact, recession likely
Significant impact, but not catastrophic
Spot problems, but no major economic impact
Minor impact
No impact/don't know
Base: 100 IT managers at companies with at least 500 employees
Source: Computerworld Information Management Group, Framingham, Mass.


SUPPLY-CHAIN FEAR
Percentage of respondents very or extremely concerned with the year 2000 compliance of their suppliers' and customers' IT systems
Large firms (at least 500 employees)
36%
Small firms (100 to 499 employees)
40%
Base: 103 IT managers at large companies (at least 500 employees); 102 IT managers at small companies (100 to 499 employees).
Source: Computerworld Information Management Group, Framingham, Mass.

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Net security guidelines released

▸ *Would set standards for business transactions*

By Sharon Gaudin

INDUSTRY WATCHERS hope a draft set of guidelines for electronic-commerce security will ease safety concerns enough to propel online business-to-business transactions even further.

The Internet Council arm of the Herndon, Va.-based National Automated Clearing House Association (NACHA) is pushing a set of policies for business and government organizations to use when dealing with public-key infrastructures.

ENCRYPTION TECHNOLOGY

Public-key encryption involves the use of digital certificates and signatures to positively identify the buyer and the seller in electronic transactions. [QuickStudy, CW, March 16 and June 29.]

MORE ONLINE

For resources on the Secure Electronic transaction protocol, visit *Computerworld online*.

www.computerworld.com/more

The problem crops up when different companies or organizations have different policies, rules and liabilities.

This set of guidelines, which is being tested in several organizations, was designed to get everyone on the same page when it comes to setting up business and legal rules.

"If we don't have the same rules, you shouldn't do business with me," said Jack Grimes, a senior vice president at credit-card processor Visa International Services Association in San Francisco. "Public-key [infrastructure] is the way for us to provide security. It's the wave of the future for us."

Visa and rival MasterCard International Inc. have been pushing the Secure Electronic Transaction protocol, which relies on such keys, rather than the Secure Socket Layer protocol commonly used today.

Grimes said that despite all the technology involved, the keys and the technology itself are the least of his worries.

A draft of guidelines for public-key infrastructures is now available:

- **The National Automated Clearing House Association (*www.nacha.org*) is leading the push**
- **The guidelines, crafted through a collaboration of state and federal organizations and private businesses, have been in the works since May 1997**
- **The guidelines are available at *http://internetcouncil.nacha.org/CARAT/***
- **Public comment period lasts until Dec. 31, 1998**

"The issue is the liability," he said. "The two companies [in a transaction] have to agree to trust the same certificate structure. If they were using the same structure, it would be much easier. It's really a trust problem."

William Kilmartin, state comptroller in Massachusetts, said he has been using the guidelines to set up a multistate electronic mall where purchasers from seven states can buy things such as office and automotive supplies from more than a dozen suppliers.

"These are legally binding purchase orders done with zero paper," Kilmartin said.

"Part of the concern is that you'll have 50 state governments with their own policies. That would be like each state having its own currency. How would you ever do trade? It would be so risky, it would put a chilling effect on the whole idea," Kilmartin said.

Julie Foster, director of the NACHA's Internet Council, said the guidelines have been on the drawing board for a year and a half and now have been released for public comment.

She said that at this point they are a set of suggestions and aren't necessarily on the road to becoming a standard.

"There's just not enough experience out there with [public-key infrastructures] and electronic transactions to set standards at this point," Foster said.

"They're being used in several upcoming projects, and we're looking for feedback on what worked, what didn't, what was cumbersome, what's not clear enough," she added.□

Net.Commerce gets update

By Sharon Machlis

IBM last week upgraded Net.Commerce, its flagship electronic-commerce software platform, adding support for the new euro currency and 18 new partners that offer functions such as personalization and supply-chain management.

"I think they're doing the right things," said Matt Hyde, director of online sales at Recreational Equipment Inc. (REI) in Kent, Wash., which uses the platform for its REI.com and REI-Outlet.com Internet stores.

IBM also said it's releasing a preview version of a Java-based component that lets Net.Commerce users conduct online auctions.

New Net.Commerce partners include CyberCash Inc. in Reston, Va., for payment processing through a user's own financial institution; Netcentives Inc. in San Francisco, for customer loyalty promotions; Net.Genesis Corp. in Boston, for data analysis and targeted marketing; and United Parcel Service of America Inc. in Atlanta, for package tracking.

The move continues IBM's strategy of looking outside the company to bring more functions to its electronic-commerce offerings — a better strategy than trying to build in-house, said David Marshak, an analyst at Patricia Seybold Group, a consultancy based in Boston.

Pricing for Version 3.1.2 of Net.Commerce Pro for large businesses is unchanged at $19,995.

IBM said its new Net.Commerce Web Hosting server, aimed at banks and telecommunications companies that host clients' Web sites, will be available Dec. 18.

Pricing starts at $12,499 for one processor and five merchant licenses.□

Cisco switches to do more for less

▸ *Catalyst line to offer high-end functionality*

By Bob Wallace

INFORMATION TECHNOLOGY managers looking to increase network bandwidth without breaking the bank may find two switches announced last week by Cisco Systems Inc. fit the bill.

The San Jose, Calif.-based switching kingpin detailed two midrange switches that can be used to deliver bandwidth in 10M bit/sec., 100M bit/sec. or 1G bit/sec. pipes to power users, other switches and server farms.

The Catalyst 4003 can support 36 Gigabit Ethernet ports or 96 10/100M bit/sec. ports, while the Catalyst 2948G has 48 10/100M bit/sec. ports and two Gigabit Ethernet uplinks. Both are due out in the first quarter of next year.

The switches can be used to deliver bandwidth in 10M bit/sec., 100M bit/sec. or 1G bit/sec. pipes.

The Catalyst 4003 "is evidence that functionality that previously only existed in expensive data center-class boxes is filtering down into lower cost and lower-end switches," said Esmerelda Silva, an analyst at International Data Corp., a research firm in Framingham, Mass., and sister company to *Computerworld*.

Those items include networking cards with more ports, more scalable switches, multicasting and the ability to aggregate smaller trunks into larger virtual ones, Silva added.

Cisco's EtherChannel technology enables that aggregation of pipes, which boosts throughput between switches and between switches and devices such as servers.

In the past, "we had to go with higher-end and more expensive Cisco switches to get Gigabit uplinks," said Bryan Brown, manager of network services at Helix Health Inc. in Baltimore. With the Catalyst 4003, he said, he gets the Gigabit Ethernet functionality he seeks at a lower cost.

PORT AUTHORITY

Quarter	Ports	Revenue
2Q 1998	35,000	$59.5M
3Q 1998	59,600	$91.4M
4Q 1998	108,500*	$148.8M*
1Q 1999	164,000*	$200.6M*

*Projected

Source: Dataquest, San Jose, Calif.

CISCO SHELLS OUT

Gigabit Ethernet switches haven't come cheaply or quickly to Cisco. The Catalyst 4003 is based on application-specific integrated circuits developed by Gigabit Ethernet start-up Granite Systems Inc., which Cisco bought more than two years ago for $220 million.

In the meantime, rivals 3Com Corp., Nortel Networks and others, including start-ups, have developed similar Gigabit Ethernet switches, Silva noted.

Pricing for the Catalyst 4003 will start at $187 per 10/100M bit/sec. port and $1,277 per Gigabit Ethernet port.

The Catalyst 2948 will cost $8,995.□

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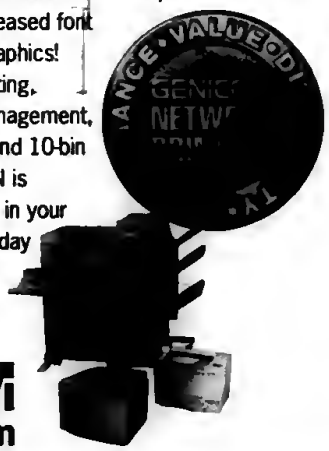

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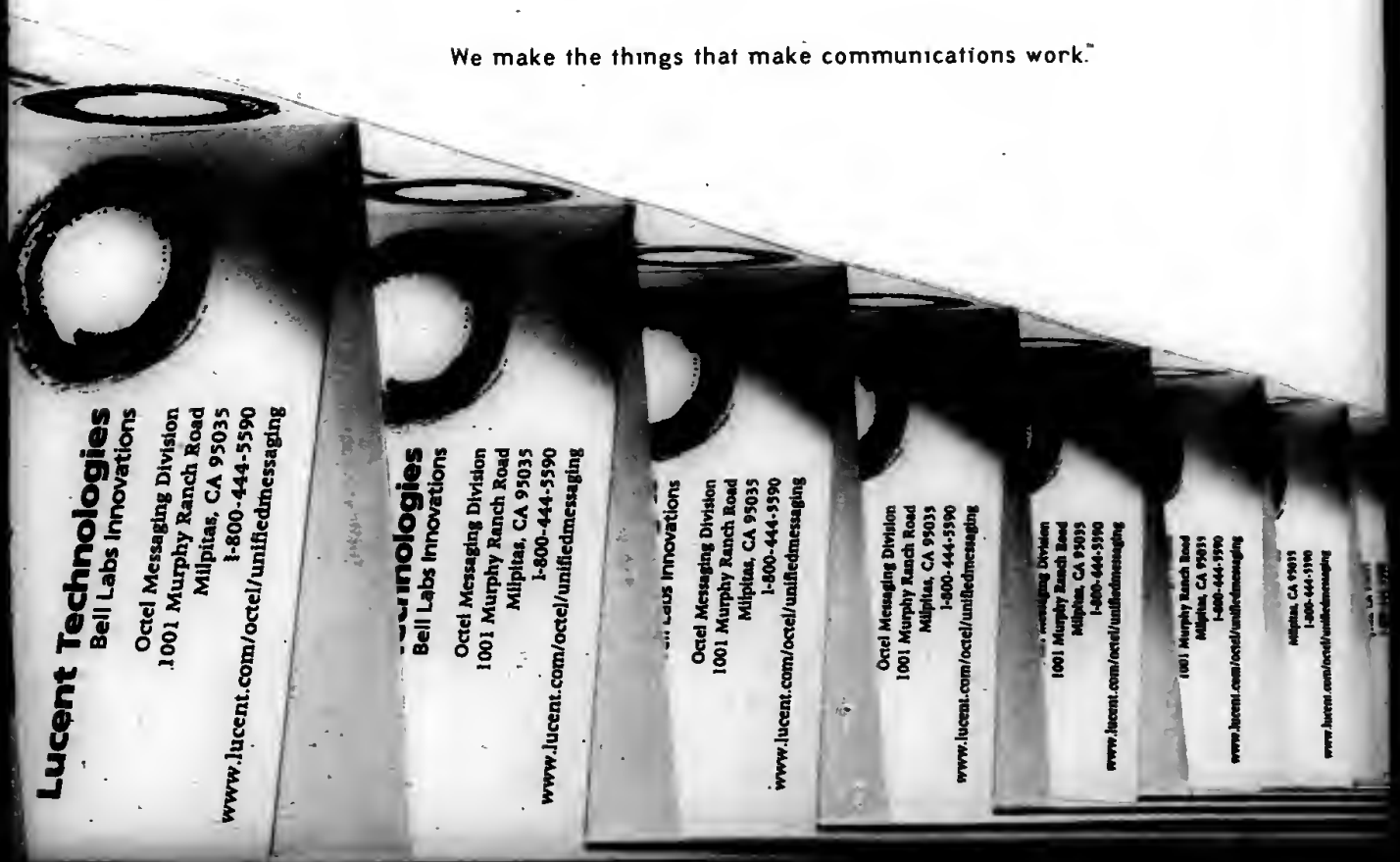


INTERNATIONAL BRIEFS

China's PC crackdown

HONG KONG — China's crackdown on PC smuggling, in place since June, has caused foreign vendors to underperform their local Chinese competitors in the fast-growing, lucrative China market, said researchers here last week from Framingham, Mass.-based International Data Corp. (IDC), a sister company to *Computerworld*.

The government crackdown increased PC prices between June and October in China as dealers leery of increased regulatory scrutiny sold fewer or even no imported PCs. – Clare Haney, IDG News Service

French youth take to Internet

PARIS — Three-quarters of French youth believe that the Internet will change the world for the better, and 94% believe that the Net will create a more open global society, according to a recent poll.

Nearly 30% of people between the ages of 15 and 25 use the Internet, the poll showed, compared with a national average of well under 5% by most estimates. Still, the poll showed that French youth think the Net is too expensive to access, is too slow and unreliable and has too little French-language content.

French research firm Sofres surveyed French youth ages 15 to 25 in late October on behalf of France Telecom SA. – Kristi Essick, IDG News Service

BT to open phone network

LONDON — British Telecommunications PLC has demonstrated a technology it hopes will spur the creation of many services and features for the public phone network. Called Parlay, it will let outside programmers access BT's switched network to develop new IP-based telephony services.

Parlay was developed by an industry consortium that includes Microsoft Corp., Northern Telecom Ltd.'s Nortel Networks, Siemens AG and DGM&S Inc. Officials said the consortium expects to launch a commercial version within the year. — Jana Sanchez-Klein, IDG News Service

Russian E-commerce group

PARIS — The Russian Association of Electronic Commerce has been formed to help promote the national market for electronic-commerce technology. About 200 people and 112 companies and other organizations — including Russia's Central Bank and the lower house of parliament — attended an electronic-commerce conference in St. Petersburg and decided to form the group. – Jeanette Borzo, IDG News Service

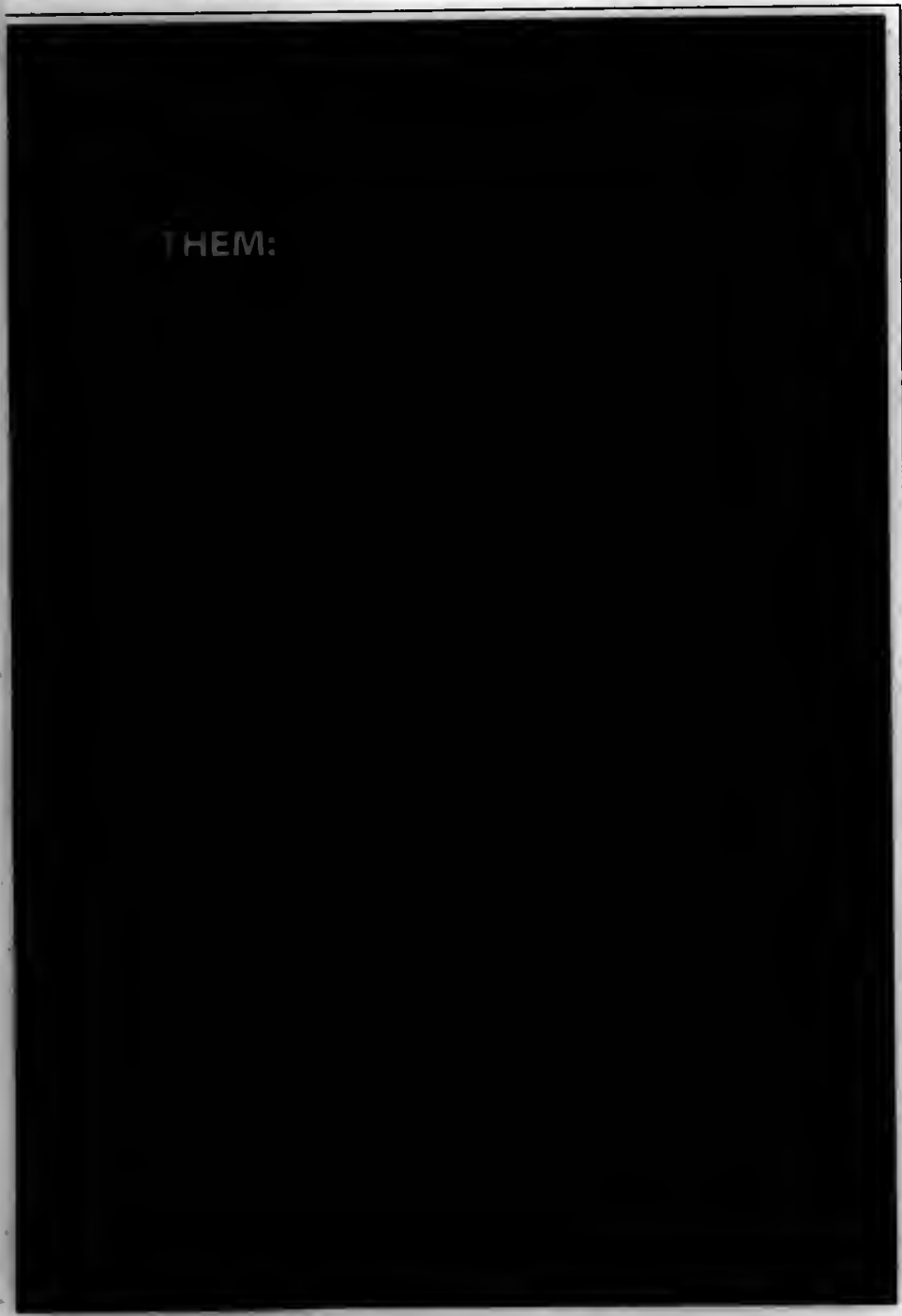
ALSO OF NOTE: PointCast Inc. in Sunnyvale, Calif., has expanded to Europe with new editions of its Internet broadcast information service in Germany and the U.K., the company announced last week.

■ In light of the new European Union directive on digital signatures, which puts them on the same legal basis as written signatures, Germany needs to revise its digital-signature law, which focuses on technical implementation details, urged the German National Association for Information and Communications Systems, an information technology trade group.

■ A committee of the World Trade Organization (WTO) is set to meet Dec. 11 to consider adding to the list of technology products that will be free of tariffs. The WTO has failed to agree on such a list in several previous meetings, however.

■ Computer Associates International Inc. in Islandia, N.Y., has struck a deal with Information Technology Pioneer International Inc. in Taiwan to provide integrated financial system applications and enterprise management software and services to banks in Taiwan and China.

■ Netscape Communications Corp. is closing its office in Brazil as part of a reorganization, said a Netscape official in Sao Paolo, Brazil. He said the reorganization affected countries in Europe and Asia, as well as the U.S., but provided no details. – IDG News Service reports



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Jini

DEFINITION: Jini is networking software created by Sun Microsystems Inc. as an extension of Java, the company's cross-platform programming language. It will be available in the second half of next year. Jini's goal is to enable the creation of simpler, more flexible networks. It will enable devices to immediately start working after being plugged in directly to a network (see diagram, below). Once the devices are connected, Jini will provide a way for machines, applications or devices to automatically "discover" and share resources called "services" (see Jini Speak glossary). The ability to download and move Java code or objects over a network is central to Jini's architecture. It requires very little memory — about 40K bytes of Java code — which will let it run in devices with very low memory, such as printers, personal digital assistants and cellular phones.

JINI SPEAK

Discovery: This is the "Hello, I'm here" piece of Jini — the identification process by which a new machine or device joining the network becomes a part of a Jini "federation" or network group and advertises its services to other users. When a Jini-enabled device plugs into the network, it drops a 512-byte Discovery packet.

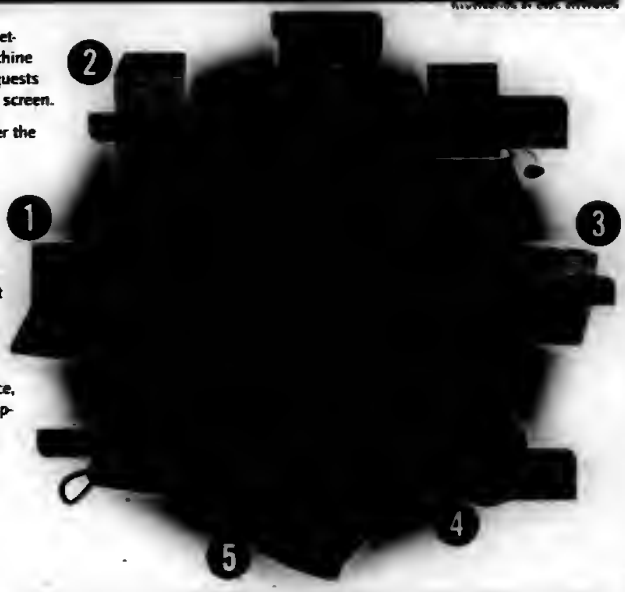
Lookup: A key component in the Jini system, Lookup is the equivalent of a network bulletin board for all available services. Lookup stores pointers to various services on the network as well as code for other services. As Java code that resides on the Jini server, Lookup keeps track of what's on the network and what services they can provide to the others.

Proxy: This is the piece of Java code that moves around from device to device acting as the front end for all the Jini-enabled or legacy systems. The proxy essentially tells the client how to use the device. For example, it may include a graphical user interface that shows the user how to work the network projector. In the PC world, the equivalent would be the device driver.

Services: Arguably the most important concept behind Jini, services encompass any useful function that networked devices or software components provide. A service can be computation, storage, a communication channel, a printing function, a hardware device or even another user.

■ Are there technologies or issues you would like to learn about in QuickStudy? Send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@cw.com

HOW IT WORKS



1. A laptop or other device is plugged into the network, and the Jini code in the Java virtual machine on the device broadcasts its presence. The user requests services that are available, and icons appear on his screen.

2. The Jini Server and its Lookup Service discover the new laptop and register it on the network.

3. Say the user wants to print a presentation. He selects the print option, which launches a query to the Lookup Service on the Jini Server. The server instantly sends proxy code back to the device. The legacy printer, which has no Java or Jini code at all, receives the printing instruction via that proxy code and prints the document.

4. Next, the user decides to store his presentation on the network and selects "save" on the file menu. His laptop queries the Lookup Service, which identifies the Jini-enabled disk drive to the laptop. The presentation is saved to disk.

5. Finally, the user wants to display his work on the projector, which already has Jini code embedded in it. He selects the projector icon on his screen, which displays the user interface he needs to use that service.

Q&A

Computerworld executive editor Maryfran Johnson recently spoke with Bill Joy, inventor of Jini and vice president of research at Sun Microsystems, about the relevance of this new, object-oriented technology.

Q: *What's the simplest, quickest way to explain Jini to a businessperson?*

A: It's "plug 'n' work." Devices can plug in and work immediately. A huge complaint with computers today is their complexity. Jini provides a way of having a range of devices on [a company network] providing services that are easy to use.

Q: *Is the Jini technology primarily for consumer devices, or is it relevant to Fortune 1,000 businesses?*

A: It's widely recognized that most new devices in the next 10 years are going to be personal communicators, Internet phones and embedded devices. People in corporations have these devices, too, and they will need to be managed and work together.

Q: *How important is having a robust, widely accessible wireless network in Jini's future?*

A: We believe wireless will happen, but we designed Jini to work with devices people have today, and especially well with devices that are coming, with the network interfaces built in.

Q: *When will Jini products start reaching the market?*

A: Our goal is to have a variety of Jini products out toward the end of 1999, embedded in appliances. But you can certainly run Jini services on existing Java-based products now. More than 30 companies have already licensed the Jini source code, but I don't think we really know who's developing what. We're not trying to be a referee.

Q: *When will we see the first large-scale deployments of Jini?*

A: That will take at least another year. For example, a hotel could make a decision late in 1999, if it was an early mover, to deploy Jini devices [such as printers] on its network. Any early adopter of handheld devices in vehicles would be [a likely Jini adopter].

Q: *How do Java and Jini relate?*

A: Java is a programming language that's about writing portable software. Jini is about making networks of devices and services that work together. It's about connecting things easily with Java objects.

COMPUTERWORLD

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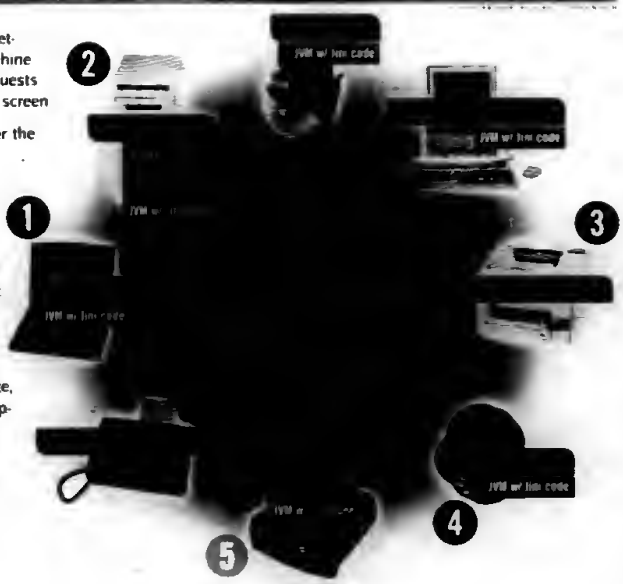

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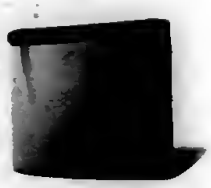

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OPINION

Click till you drop?

'Tis the season for online holiday shopping — and the myth-making machine is cranking at full power. The experts are solemnly swearing that this will be a "watershed year" for gift-buying on the Web. Shopping habits will be shifting "dramatically" to electronic purchasing. The seasonal hunt for a parking space at the mall is over.

Dream on.

Once you take a closer look at the numbers and survey findings, a more mundane reality emerges. Online shopping has indeed developed into a respectable revenue stream, which thousands of retail Web sites are grateful to see moving from a trickle to an actual cash flow.

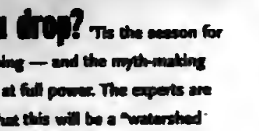
Yet it's abundantly clear that real-world stores still rule in retail. One study conducted for the Shop.org association of online retailers noted that Americans spent $4.4 billion buying stuff online in the first half of this year. But guess what? That's a paltry 1% of total U.S. retail spending during the same period.

Suddenly, that estimated $12.3 billion we'll be spending this holiday season at retail Web sites isn't so impressive. It's only double what Americans spent last year in the online holiday rush. A truly dramatic shift would move Web shopping far beyond that single percentage point of total retail spending.

And as Sharon Machlis' story (see page 4) points out, some of the most profitable Web sites are the ones being run by real-world brand-name retailers — not by the new crop of virtual retailers such as the famous Amazon.com.

Another recent study by the National Retail Federation figures that only about 30% of today's Internet users will click through to that virtual shopping basket and fork over a credit-card number. So if you've been feeling left out of the online buying frenzy, rest easy. A whopping 88% of U.S. households will buy nothing whatsoever on the Internet this year, according to Odyssey, a San Francisco marketing firm.

Truth is, we're not changing our shopping habits all that much. We're just adding another option to the list. So — in the meantime — save me that parking space at the mall.



Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*

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Digital Water Pik
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You're sucking on the antenna, Darlene.
Voice-frequency Lie-detecting Clip-On Tie
Gee...uh... thanks, Hillary.
Rich
ComputerWorld

LETTERS

Linux: Kernel is cool, but 'nongeek' version needed

I PREDICT THE recent hype over Linux will soon backfire as more and more people like me try it and find it totally inaccessible. Such a backlash could be avoided if someone would package a Linux for us nongeeks.

Clearly, someone (anyone but Microsoft, please) should be making a mass-market version of Linux, complete with a Windows/Macintosh-like point-and-click user interface and online help and documentation for all levels of users. All software developers and other organizations eager for a strong OS alternative would do well to encourage and foster their staff's open participation in such Linux development efforts.

Donald E. Carlson
U.S. Nuclear Regulatory Commission
Washington
vaperin@erols.com

I AGREE THAT microkernels are the way to go. They set up a layer of security between buggy drivers and actual kernel code. They also allow for plugging in new drivers without rebooting.

The Linux kernel has some impressive microkernel characteristics. You make a kernel with only the bare essentials to boot the OS and then load the extra hardware support via modules.

> A point-and-click interface would make Linux accessible to all.

The modules can not only be added and removed without rebooting, but the Linux kernel can automatically add and remove them for you to keep memory usage to a bare minimum.

Ricky Hardt
Houston
weasprimus@earthlink.net

It's time for DOJ, McNealy to wake up and smell the Java

IT CONCERNS ME that Klein and company at the Justice Department have missed the key point in Microsoft's transformation of Windows into a large Web browser.

The primary intent was not to kill Netscape (although that too would happen), but to create the world's most ubiquitous Java virtual machine.

This would put an end to any hopes of "cross-platform" becoming a reality.

When Scott McNealy was asked why Sun was filing its own suit against Microsoft for breach of its Java contract and not relying solely on Justice to rein in the boys in Redmond, McNealy called the Justice Department toothless.

My recollection is that the published quote was to the effect of "What are they going to do? Gum them to death?" Has McNealy too missed the boat?

So now both cases are well under way. Microsoft is forced (or worse yet, not forced) to make some concessions, and everyone misses the point: Bill Gates controls all of cyberspace.

Steven Rubenstein
Irving, Texas
akaroy@mindspring.com

Gender bias still the rule

THINGS HAVEN'T changed much for female programmers ["More opportunity, fewer women in IT," CW, Nov. 9]. I became a programmer 12 years ago out of sheer stubbornness. My college adviser had me signed up for fashion design classes. I found a new adviser who ran me through testing to see if I had the aptitude. The head of the department made me take a Basic class and said they would "see how I did." There were only four females in my class. How many more would there have been if we had fewer gender-biased advisers and professors?

Lori Faron
Lincoln, Neb.
lfaron@walco.com

Y2K: The perfect union?

HAS ANYONE yet realized that those who are working on Y2K projects can unionize and successfully demand just about anything they want? How about freedom from income taxes — for life? Or we quit now.

Mark Yannone
Peoria, Ariz.

More letters, page 37

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

AOL deal shows how Microsoft warps the market

David Moschella

It's certainly understandable that Microsoft and others would argue that America Online's $4.2 billion acquisition of Netscape proves that government intervention in the IT marketplace is both unnecessary and unwise. But here's a vote for the opposite view.

Only within the context of Microsoft's intimidating power can we make sense of this unappealing and otherwise unlikely pairing.

I find the deal unappealing for three main reasons. First, we no longer have a major independent source of browser software. That, of course, is because Microsoft bundled its Internet Explorer, essentially eliminating browsers as a viable market. Thus, for the foreseeable future, resellers, Internet service providers, portals and many other businesses will be completely dependent on software from two companies that increasingly compete with them.

The choice between Microsoft and AOL is a bit like that between McDonald's and Burger King.

Perhaps more worrisome, openness and the standards process itself have taken a serious blow. It's hard to name two companies less associated with open standards than Microsoft and AOL. Similarly, one of Netscape's most compelling strategies has been its real commitment to platform independence. But now that strategy is between Sun Microsystems and AOL, so even this strategy appears to be at risk.

Remember that no company was more responsible for the lack of a true Unix standard than Sun.

Finally, the future of Netscape's current software remains as uncertain as ever. AOL covets the eyeballs focused on Netscape's Netcenter portal, but it doesn't really need to become a major software company. Similarly, although Sun fancies itself as a key enterprise software player, it's still just dipping its toes, making little long-term commitment. It's anyone's guess how Sun will balance Netscape's enterprise products with its own overlapping offerings. Given those ambiguities and AOL's clear consumer and small-business orientation, enterprise customers can't help but be especially wary.

Not surprisingly, public reaction has been mixed. Although most of us recognize that Netscape needed help, there's virtually nothing in this particular deal to get excited about. The choice between Microsoft and AOL is a bit like that between McDonald's and Burger King. But giving Netscape financial support while its browser share is still roughly equal to Microsoft's is preferable to watching Navigator steadily decline.

The main lesson of AOL's acquisition is that weird deals such as this happen when you can't make money selling software, which forces you to morph into a portal player, making you a catch for a company that couldn't care less about your software. AOL's acquisition shows how competing with Microsoft head-on can result in serious market distortions.

Yes, AOL and Microsoft will certainly compete. But the competition has shifted away from software, making Netscape a pawn in a larger advertising war. A war in which companies will spend billions for the right to be your default Web setting — a tenuous and temporary advantage that has little to do with the evolution of a healthy software industry.

In that sense, Microsoft is right: Fierce software industry competition does exist. But, as the loss of an independent Netscape suggests, in today's Microsoft-wary environment, this kind of competition isn't necessarily evolving toward the best interests of consumers, businesses or the Internet industry itself.□

Moschella is an author, independent consultant and weekly columnist for Computerworld. His E-mail address is dmoschella@earthlink.net.

Why no one wants knowledge management

Michael Schrage

Two years ago, I made mean sport of the fledgling "knowledge management" movement. Tongue in cheek, I argued that IT departments should ignore this nascent fad in favor of the more durable notion of "wisdom management."

After all, I contended, "shouldn't your company try to train wise leaders rather than just knowledgeable managers?"

Such mild-mannered mockery wasn't well received. Apparently, there were large segments of the IT community that took the business potential of knowledge management seriously. Very seriously.

Too bad. This is the snooty, I-told-you-so column. Turns out these are lean times for knowledge management. Apparently, knowledge management practices at several major firms — you would know the names and initials — have radically underperformed expectations.

Yes, there are a couple slick knowledge management publications. Good luck to them. But, somehow, I don't think someone such as IDG Books Worldwide is going to make a mint publishing *Knowledge Management for Dummies*.

So what's the problem? Why isn't knowledge management succeeding total quality management and re-engineering as the "wave of the future"? Don't organizations care about managing knowledge? Shouldn't IT be the enterprise champion for profitably converting data into information into knowledge?

Let's answer those questions in reverse order: No. Not really. Because, just like artificial intelligence methodologies, nobody has figured out how to build a sustainedly profitable business case around it. There's a big difference between the business of knowledge management and the knowledge management of business.

Knowledge management isn't catching on in America — and won't in the near future — because most organizations aren't prepared to pay a premium for a methodology that they feel they should be doing anyway. There's no Bill Gates or Larry Ellison of expert systems; yet, who doubts that expert systems methodologies have effectively insinuated into the mainstream of mission-critical software? Artificial intelligence is a nifty technology but a lousy business platform.

Similarly, knowledge management is a perfectly decent set of methodologies that simply can't command top dollar in an increasingly competitive marketplace. Consider: It would make excellent sense for virtually all Fortune 1,000 companies to have therapists and facilitators employed full time to help ameliorate the interpersonal excessiveness and friction of their managed minions.

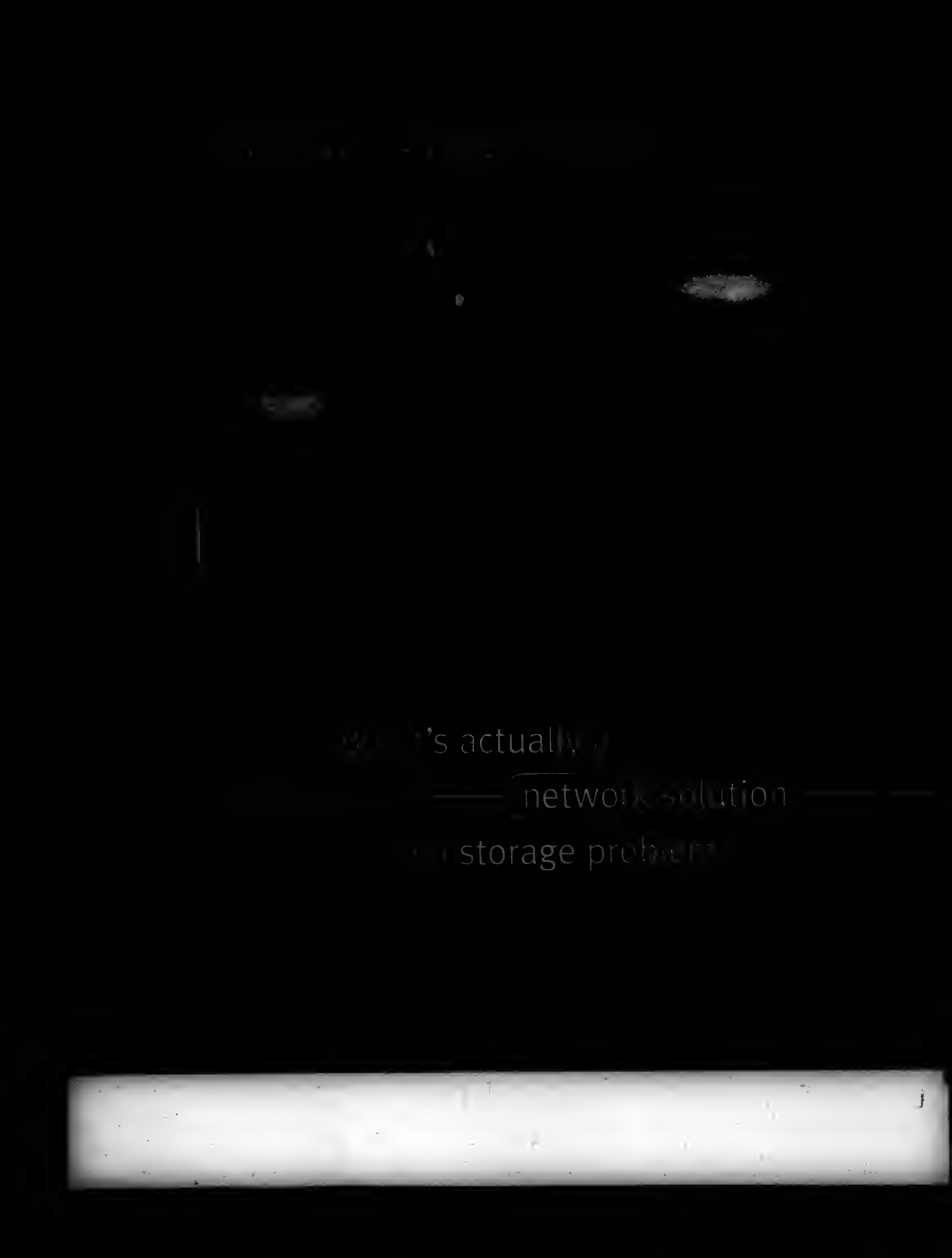
But, frankly, these enterprises expect their managers to handle those tasks. Does that mean therapy and facilitation are without value? Of course not. But McKinsey & Co. and Andersen Consulting haven't gotten rich selling themselves as therapists and facilitators (even though that's what they often do). That isn't what firms pay for.

The quality of knowledge matters less than the quality of management.

And they aren't going to pay for knowledge management. Like therapy and facilitation, knowledge management is something managers are expected to manage. Let's get meta: the knowledge managing knowledge management requires organizations to change how they behave rather than what they think. That isn't a subtle distinction.

The truth about knowledge management is that the quality of knowledge always matters less than the quality of management. The reason knowledge management isn't catching on as a business is that most organizations know that knowledge — or the lack thereof — isn't their real problem or their real opportunity.□

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His E-mail address is schrage@media.mit.edu.*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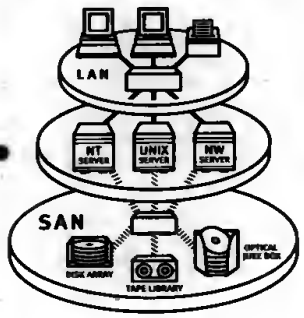

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Great holiday gifts for your favorite exec

Michael Cohn

It's that time of year again. Time to schmooze executives, colleagues and clients with that perfect high-tech holiday gift. But how do you find the right one? The gift for the boss that says, "Notice me. I'm a team player." Or, "Hope you like this; it's all I can afford thanks to your stinkin' 1.4% raise."

Fear not. Below are the latest gifts and gadgets, designed for the executive who has everything except the time to use them. Be the envy of the department if you give, or even receive, something really cool, such as the following:

I still haven't figured out how to use the PDA I got *last* Christmas.

The Year 2000 Calendar. Everyone's buying 1999 calendars, but you can be the first to give a calendar for the year 2000. It's made of glow-in-the-dark acrylic, in case you have a power outage, halon release or similar pesky inconvenience that flimsy paper calendars can't handle. Comes in both a 365- and 366-day version, if you can't decide whether or not 2000 is really a leap year.

Collectible Diskettes. Someday they'll be like baseball cards. In 20 years, we'll be swapping and selling them for big bucks. So imagine your customers' glee when you present them with collections of such rare and nostalgic items as America Online 2.5 or DOS 3.0 in the original box. Rekindle some warm memories with the macarena/macaroni screen saver, flying toasters on a 5.25-in. disk or any version of OS/2.

iMac Beanie Baby Stocking Stuffer. Kind of a miniature version of the square, whitish-blue, hot-selling PC. But like it's likeness, expect incredible demand and long delays — especially because the first several thousand were mistaken for ice cubes and doused with Wild Turkey at Beanie Baby maker Ty Inc.'s office Christmas party.

Medical Mouse. You'll make friends for life when your clients unwrap this medical marvel. It works like any other mouse, but with simple hand contact it displays your temperature, blood pressure and heart rate. Guaranteed for hours of fun; not recommended for use with your broker's Web page, especially when your Internet stock has dropped 30% since lunch.

PDA Cleaning Kit. Has your palmtop device been through the wars? Is it covered with coffee stains? Was it plopped into potato salad during a power lunch? Everyone could use the PDA Cleaning Kit. Comes with 64 ounces of gentle saline solution and two soft buffing cloths. Submerge just five minutes, wipe dry, and the PDA looks like new. Of course, from then on it won't work a lick, but I still haven't figured out how to use the one I got *last* Christmas.

Keyboard Vacuum. The gift that keeps on giving, especially since the average American keyboard probably contains 15 pounds of disgusting debris — dandruff, cruller crumbs, maybe even a contact lens or two. The vacuum's gentle action is guaranteed to suck out all the bad stuff, and maybe a vowel or "Esc" key while nobody's looking.

Euro Conversion Kit. Finally, in the rare event that a major multinational company or two isn't ready for the euro, this handheld device easily translates lire to euros to francs.

Several million have already been ordered in Europe, and right now they cost only 1,600 of those little € things, if anyone could figure out how much that is.

Internet Stock Barometer. Mount it on your wall and watch its gold-plated hands try to keep up with Yahoo, EBay, Amazon.com, MindSpring and any of your other favorite insanely priced cyberstocks. And it can also be used as a ceiling fan.

Remember: There are only 18 shopping days left! □

Cohn works in Atlanta and for the holidays would really prefer cash.

Why archaic human interaction matters so much

Andrew Borts

Human interaction has been around for a few million years. But in the past four years, the Web has made that passe.

"Learn from home." "Take our course online!" "Forget the conference, just download the presentation file." "Check out the newsgroups." "The virtual community is where the action is." That's simply not enough for me.

At a recent user conference, the shrinking attendance baffled me. Because software has become easier to use and its quality has increased dramatically, people don't seem to need a soapbox to stand on anymore.

At a sound-off session two years ago, you would've heard the musical sounds of users complaining about the broken parts of their operating systems. Now, since the technical issues seem to be conquered, trivialities and business issues are the hot topics.

The Web can't replace interacting with other users — discussing why something worked or didn't work the way it should on their systems.

The Web should augment our tools, not replace them. Let's grow ourselves instead of our hard drives.

Over the years, user organizations have been viewed as people obsessed with a cause. People atopped listening to us because we've become the minority. In the old days, computer companies had to listen because we yelled frequently — and loudly. When one user had a problem, the group rallied behind him and made it an issue benefiting the entire membership. The focus now should be on positive experiences and sharing new solutions.

But the virtual community has hastened our slide into irrelevancy. If we let that happen, everyone loses. Companies must send as many people as they can to user conferences, because the gain in experience far outweighs the cost of sending someone. That person brings back solutions to problems, examples of how to accomplish newer tasks and more contacts with people within the industry. Experience is very important. Interacting with people who have experienced what you're trying to do still is the best way to understand a problem.

In the old days, I would attend meetings and beta-test exciting new software. I'd meet people such as Steve Case, now CEO of America Online, who at the time wanted to revolutionize the world of the bulletin board service.

Such people still need to hear from you. We not only can help one another with our problems of today, but help our technology suppliers help us with our problems of tomorrow — if we make the effort to tell them in unison, not as nameless E-mail and voice-mail messages.

What can you do about this dilemma? Join your local user group now. Attend meetings. Become part of an organizational committee. Create a presentation on how you solved a particular problem. Interpersonal networking is still the best way to get a job in this industry. Don't simply attend and complain about how you could change the world — seize the moment and become involved.

The virtual community has hastened user groups' slide into irrelevancy

Companies such as Microsoft might be swayed by a group of rallying users detailing their difficulties with one voice. Remember: We the users should shape the products, not the companies that create them.

The motto of my first user group was "Share the Feeling." The definition of this is, simply, "You're never alone." I propose that this be the motto of all user groups from now on. Don't let the Web interfere with millions of years of human evolution. Let's "Share the Feeling" again. □

Borts is an active member of Common, an AS/400 user group, and manages its user discussion session during its biennial event. His E-mail address is andrewb@sysctl.com. To find out more about Common, visit www.common.org.

'Busybody' columnists should stop being so hard on Microsoft; Love says task is Essential

Why Microsoft must be stopped

Ralph Nader and James Love

Everyone who uses a computer or depends on someone who does has an interest in seeing Microsoft's anticompetitive and anticonsumer practices curtailed by antitrust authorities.

If, the industry and consumers will benefit from more diversity and less monopoly.

MR. NADER, stop being a busybody, and get a real job where you have to produce something for a profit to live ["Why Microsoft must be stopped," CW, Nov. 9]. I believe that you would starve if you were required to work at a real job. It's people like you who are jealous of someone who succeeds. By the way, where does essential.org get its funding? If all essential.org does is poke its nose where it doesn't belong, you aren't very essential. Farmers who work to put food on the grocery-store shelves are essential. Busybodies aren't!

Larry Kotur
East Liverpool, Ohio
lkotur@vonrollwti.com

THANKS FOR the note, Larry. Information about Essential Information is on the Web at *www.essential.org*. It is a nonprofit group, funded by private foundations, charitable donations and book sales. However, as I am sure you know, there are a large number of nonprofit groups in the United States — such as the Sierra Club, the ACLU, the League of Woman Voters, the Consumers Union and the NAACP — each serving a different purpose. From time to time, these groups may criticize profit-making organizations. The sun rises in the morning, and the republic lives on. These things happen in a democratic society.

James Love
Washington
love@cptech.org

MUCH OF Mr. Nader's and Mr. Love's article is rooted in conjecture and has no basis in fact. The Windows environment is Microsoft's exclusively; as such, it should have the freedom to market the product in any way it wishes. Mr. Nader and Mr. Love also allege that "Microsoft is mainly an imitator." On what basis? Microsoft borrowed the paradigm of windowing systems from Apple Computer (but it originally was the brainchild of Xerox PARC) and added an array of enhancements — features not found in either Apple's or Xerox's products.

Glitches aside, Microsoft has designed well-defined user interfaces. Historically, the more government regulates, the less freedom the public has for innovation.

Jonathan Verlin
Philadelphia
teacherjv@pop.erols.com

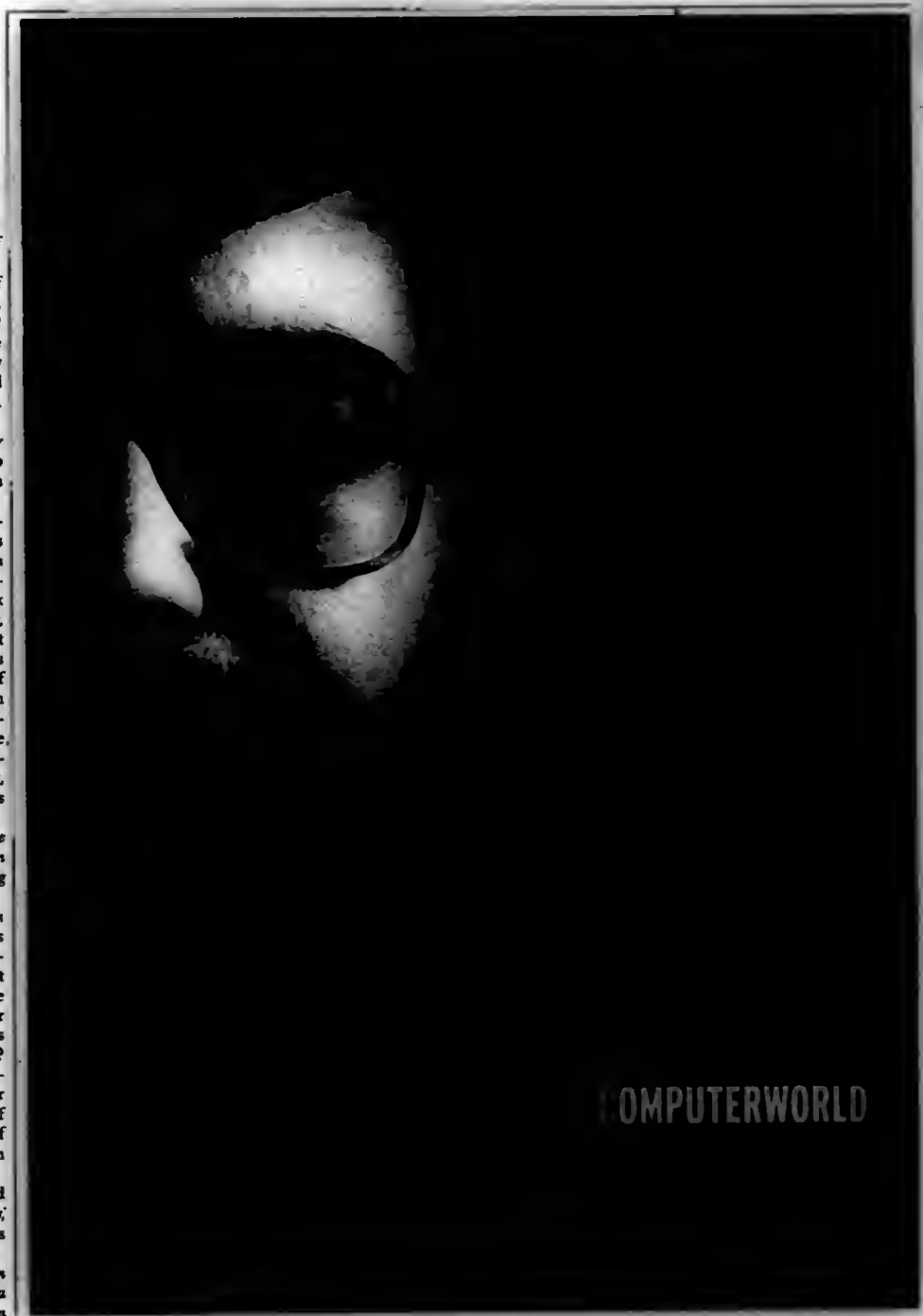
I JUST FINISHED reading the column, "Why Microsoft must be stopped," and I have had just about enough Microsoft bashing. I totally disagree with Ralph Nader's and James Love's assumptions.

Their accusation of Microsoft as just an imitator and not an innovator is preposterous.

What piece of art, music, literature or business strategy was not built on someone else's ideas? That's the way it is in all great endeavors.

According to recent polls I have read, 86% of the public says to leave Microsoft alone and not go on with these hearings. That sums it up; the people have spoken.

Nick Biondo
Astoria, N.Y.
njbiondo@email.msn.com



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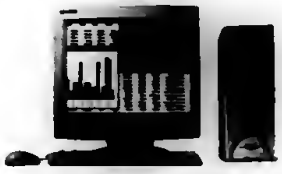

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Better answers.

It was one of the most visited Web sites of all time. In all, the France '98 site, powered by software from Sybase, generated over 1.5 billion hits from more than 170 countries. Shoppers purchased World Cup merchandise via an e-commerce store that averaged over 760,000 hits per day. Journalists and staff members relied on an intricate intranet to access valuable, timely information. From the Web to e-commerce to intranets, France '98 was a global success, and one that we can replicate for businesses like yours. With our proven technology, we can create complete Web solutions that enable your company to bring together and distribute mountains of information to provide the competitive advantage you need to achieve your organizational goals. To learn more about the success of the France '98 Web solution and what we can do for your business, visit www.sybase.com/worldcup or call 1-800-8-SYBASE (Ref. CPCW4).

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Corporate Strategies

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Briefs

VALUE OF TRAINING

Percentage of people who found the following training methods "very valuable":

Informal on-the-job training	64%
Self-study on employees' own time	44%
Formal classroom training on company time or employees' own time	36%

Base: 1,012 U.S. workers who work at least 35 hours per week in companies with more than 100 employees; multiple responses allowed

Source: Saba Organization/Training Magazine survey

SAP user awards

Members of SAP Users' Group (ASUG), a Chicago-based user group association, last week announced the 1999 Impact Awards to recognize the good efforts of members' SAP software implementations in the workplace.

ASUG member company representatives must submit an application, a 2,500-word essay and a letter from a company executive describing the implementation's overall value by Dec. 15.

For more information, call (312) 321-5142 or visit www.asug.com.

Year 2000 status report

Where are you on year 2000?

- Have already deployed year 2000 remediation systems
- In various stages of remediation
- Still assessing the year 2000 problem

Base: Survey of 600 IT executives

Source: Computer Sciences Corp., El Segundo, Calif.

CIOs split 50-50 on outsourcing

By Barb Cole-Gomolski

AS BUSINESSES BECOME more savvy consumers of technology, CIOs are morphing from behind-the-scenes tech-heads into exalted members of executive teams, a recent study shows.

Although most CIOs agree that their jobs are changing, they disagree on whether outsourcing — which is often touted as a way to free CIOs from the drudgery of technical maintenance — will help or hurt their efforts to use information and technology for strategic advantage.

A recent survey by Los Angeles-based Korn/Ferry International that polled 150 U.S. CIOs showed that 65% believe their jobs are becoming more business-focused. As part of the Korn/Ferry study, respondents were asked about general technology trends, including those involving the Internet, network computing and outsourcing.

CIO SURVEY

About half the U.S. CIOs surveyed had reservations about outsourcing, saying it's too expensive and makes it difficult to react quickly to business changes. Others saw it as a way to free themselves from day-to-day minutiae, thus giving them more time to focus on strategic applications and general business issues.

Sixty-seven percent of respondents said that, to some extent, outsourcing hadn't been cost-effective.

"Outsourcing doesn't help [a CIO move into a more business-focused role]," said Chris Horrocks, CIO at Commercial Financial Services Inc. in Tulsa, Okla. Though Horrocks has no problem outsourcing small specialty projects, large-scale outsourcing has a paralyzing effect on IT, he said.

Still, San Jose, Calif.-based research firm Dataquest said

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OUTSOURCING YOUR WAY TO THE TOP

Pros

- Lets them focus on strategic applications and business issues
- Reduces the need to recruit staff in a tight labor market

Cons

- Harder to quickly respond to market changes
- More expensive than doing work in-house

Cessna launched Y2K plan in '95

▸ *But finds new issues crop up as 2000 nears*

By Thomas Hoffman

Year 2000 project managers have a lot more on their plates than just making sure that their companies' systems are ready. They also have to address their own industries' unique requirements.

Banks, for example, have to make sure customer deposits are made. Hospitals must ensure life-saving equipment, such as defibrillators, works when needed.

Computerworld senior editor Thomas Hoffman recently caught up with Sandy Gieber, the year 2000 program manager at Cessna Aircraft Co. in Wichita, Kan., to discuss the key issues her organization faces in its millennium countdown.

Cessna's strategy to stay aloft at the millennium covers more than just its aircraft and parts division

CW: When did you launch the year 2000 project at Cessna?

GIEBER: We started in early 1995, initially focusing on MIS. From there, it has expanded to six different areas, including business systems, the shop floor area, aircraft and parts services, our supplier network, customers and regulators. We want to make sure those who have regulatory powers over us won't interrupt our operations.

CW: Where do those regulators stand?

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CW: What is the status of Cessna's own systems year 2000 readiness?

GIEBER: We've completed the conversion of all of our applica-

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IT CULTURE

How cool is IT? Enough for *Rolling Stone*

By David Orenstein

WHERE IN modern culture does information about technology fit? It's recently squeezed its way into the haute culture of *The New York Times* and soon will be part of the hot culture of *Rolling Stone* magazine.

Beginning with the Jan. 21 issue, the biweekly New York-based *Rolling Stone*, published by Wenner Media, will be rolling out a regular two-page section devoted to the cultural impact of digital technology. The section was partly inspired by Circuits, The New York Times Co.'s weekly personal-technology section in the *Times*, which made its debut in February.

"Technology now is part of pop culture," said Penry Price, *Rolling Stone*'s director of technology advertising. "It is the right time for us to cover it." More than two-thirds of *Rolling Stone*'s 1.25 million readers are 18 to 34 years old. Members of that tech-savvy group have made cellular phones, pagers and personal digital assistants fixtures of their lives, Price said. They have flocked to the Web for lifestyle information and to sample and buy music.

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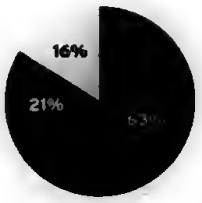

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OUTSOURCING YOUR WAY TO THE TOP

CIOs have mixed views about whether outsourcing liberates them or puts them at risk

Pros	Cons
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Group urges mediation over litigation

▸ *Firms pledge to settle Y2K issues out of court*

By Tom Diederich

WHEN IT COMES to resolving business disputes related to the dreaded millennium bug, mediation beats litigation, some major companies have decided.

Last week, the CPR Institute for Dispute Resolution launched a campaign to get even more companies to sign a pledge agreeing to first negotiate — and, as a last resort, to mediate — year 2000 disputes. A dozen large companies, among them General Mills Inc., Philip Morris Cos., McDonald's Corp. and Bank of America, thus far have signed that pledge.

In addition to saving a bundle in legal fees, the pact's signatories stand to preserve business relationships that otherwise would be put at risk if subjected to cutthroat litigation, said James F. Henry, the founder and president of the nonprofit group.

"Mediation gives [companies] the ability to resolve a business problem in a businesslike way as opposed to the 'I win, you lose' decision of a court or a third party in arbitration," he said.

Mediation, according to Henry, also resolves a dispute considerably faster than one achieved by a lawsuit. "In an era when product life cycles are measured in months and litigation is measured in decades, the ability to resolve a dispute in a matter of days is obviously beneficial," he said.

Mediators will be tapped from the organization's 700-member stable of lawyers and retired federal judges, he added.

Henry said the organization's 250 corporate members, as well as more than 2,000 other corporations and law firms in North America and Europe, are expected to sign up for the mediation plan this month. Companies of all sizes are encouraged to participate.

GLOBAL APPEAL

"We want every company in America and the industrialized world to sign the pact, not simply the large companies," Henry said. "We also want very much for them to pass this on to their business associates — their suppliers or customers or dealers — because it is [this type of dispute that is] important in terms of preserving business relationships."

National trade organizations that have announced that they support the CPR Institute's year 2000 drive include the Information Technology Association of America, the Chemical Manufacturers Association and the National Association of Manufacturers. □

CIOs 50-50

CONTINUED FROM PAGE 41

the information technology outsourcing market is growing rapidly, from $55 billion last year to a projected $77 billion by 2000.

At Commercial Financial, Horrocks looks to his own staff to cover him on routine tasks. He and about 35 other high-level IT staffers focus on strategic applications, such as data warehousing and knowledge management, while a separate group handles day-to-day IT operations, such as PC and network support and mainstream application development.

That isn't always practical in today's tight labor market because firms often can't hire and retain the staff they need, said Karen Rubenstrunk, an analyst at Meta Group Inc. in Stamford, Conn. "Outsourcing is now a way of life because no IT organization can do it all," Rubenstrunk said. Instead of avoiding outsourcing, CIOs should be developing skills to deal with external resources, she said.

That's exactly what Sears, Roebuck and Co. is doing. The Hoffman Estates, Ill.-based retailing giant is shoring up its internal project management and negotiating skills to better manage contractors. CIO Joseph Smialowski, who will move to the top IT post at BankBoston this week, estimated that out-

"Outsourcing is now a way of life," remarked one industry analyst.

sourcing operations of the Sears data center off-loaded about 40% of his work, freeing him up to hold spots on the company's executive, finance and compensation committees.

"If you outsource commodity work, it will help you focus more on the business," said a CIO at an oil company. When he started at the company a few years ago, the IT staff was handling PC and network support. "I have since outsourced that so we could focus on strategic applications," [including a retailing data warehouse], he said. □

TURN
ac 8 now available

Cessna

CONTINUED FROM PAGE 41

tion systems, covering 12 million lines of code. We worked with Computer Technology Associates [in Bethesda, Md.] to do the code scanning and modification. No more than 5% of our code had to be modified.

CW: Did you bring in any third parties to validate your year 2000 plan?

GIEBER: We hired an outside consultant Interim Services [Inc.'s technology group in Fort Lauderdale, Fla.] to make sure we were looking in all the right places, that our methodology was sound. They spent over a month reviewing our plans.

We have internal folks looking at the code CTA converted for us. I'm considering purchasing an automated tool to audit some of our code next year.

CW: Are you planning to freeze new systems installations in late 1999?

GIEBER: We can't just stop our business. We're not going to be doing that. We'll make sure that in all contracts, terms and agreements, we have Y2K-compliance.

Of requisters: "I'm not as comfortable as I'd like to be"

CW: How big of an impact will the year 2000 problem have on society?

GIEBER: It's not a gloom-and-doom problem. People shouldn't run to take their money out of the bank. It's a well-managed situation. The world isn't going to end Jan. 1, 2000.□

Rolling Stone features IT

CONTINUED FROM PAGE 41

may expand the section to four or five pages if it takes off, said Price, who recently attended Comdex to see what technology hits *Rolling Stone* should cover.

The same trend that now compels *Rolling Stone* to consider running stories about 3Com Corp.'s handheld device within the same pages that cover grunge rockers Seven Mary Three had compelled the *Times* to launch Circuits. The section covers "the impact on everyday life of current technology," said Lisa Carparelli, a *Times* spokeswoman.

THE BASICS

The 12-page Nov. 26 Circuits had stories about finding people and being found on the Internet, the computerization of toy train sets and how to tell vaporware from a real product at Comdex. Regular features include explanations of how technology works.

Three editors and three reporters work full-time on Circuits, Carparelli said.

Advertisers are embracing the idea of technology as popular culture. *Rolling Stone* has lined up IBM, Microsoft Corp. and Intel Corp. to join a regiment of companies such as Sony Corporation of America and Philips Electronics N.V., all of which straddle consumer electronics and business computing.

Ellen Oppenheim, a senior vice president at the New York office of ad agency Foote, Cone & Belding, said coverage of technology culture is growing, finding an audience and support from advertisers. "If you're not familiar with the current technology, you are assumed to be behind the times," she said.

Wired Digital Inc.'s print magazine *Wired*, a pioneer in the coverage of Internet culture in 1994, now faces stiff competition but still shows circulation gains, Oppenheim noted.

The ease of forming communities of interest on the Internet has in turn increased the interest of various communities in technology, Oppenheim said.□

Andersen, J.D. Edwards team up

By Jana Sanchez-Klein
LONDON

J. D. EDWARDS & Co. and Arthur Andersen Process Solutions, the outsourcing service line of Arthur Andersen & Co., have expanded their relationship to offer hosted applications to large customers worldwide, the companies announced last week. Under the agreement, when a customer outsources financial processes, Andersen will be able to use either J. D. Edwards' OneWorld network-centric software solution or WorldSoftware to manage them.□

Sanchez-Klein writes for the IDG News Service in London.

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*To help you select the right configuration for all your server needs, Oracle System Sizer 3.0 for Dell is available for download at no cost from our Web site www.dell.com/products/poweredge/partners/db/oracle/sizer.htm. Using actual tested configurations, the Oracle System Sizer recommends a Dell system configuration appropriately matched to customer database requirements. This includes the CPU's amount of memory, hard drive capacity and other parameters.

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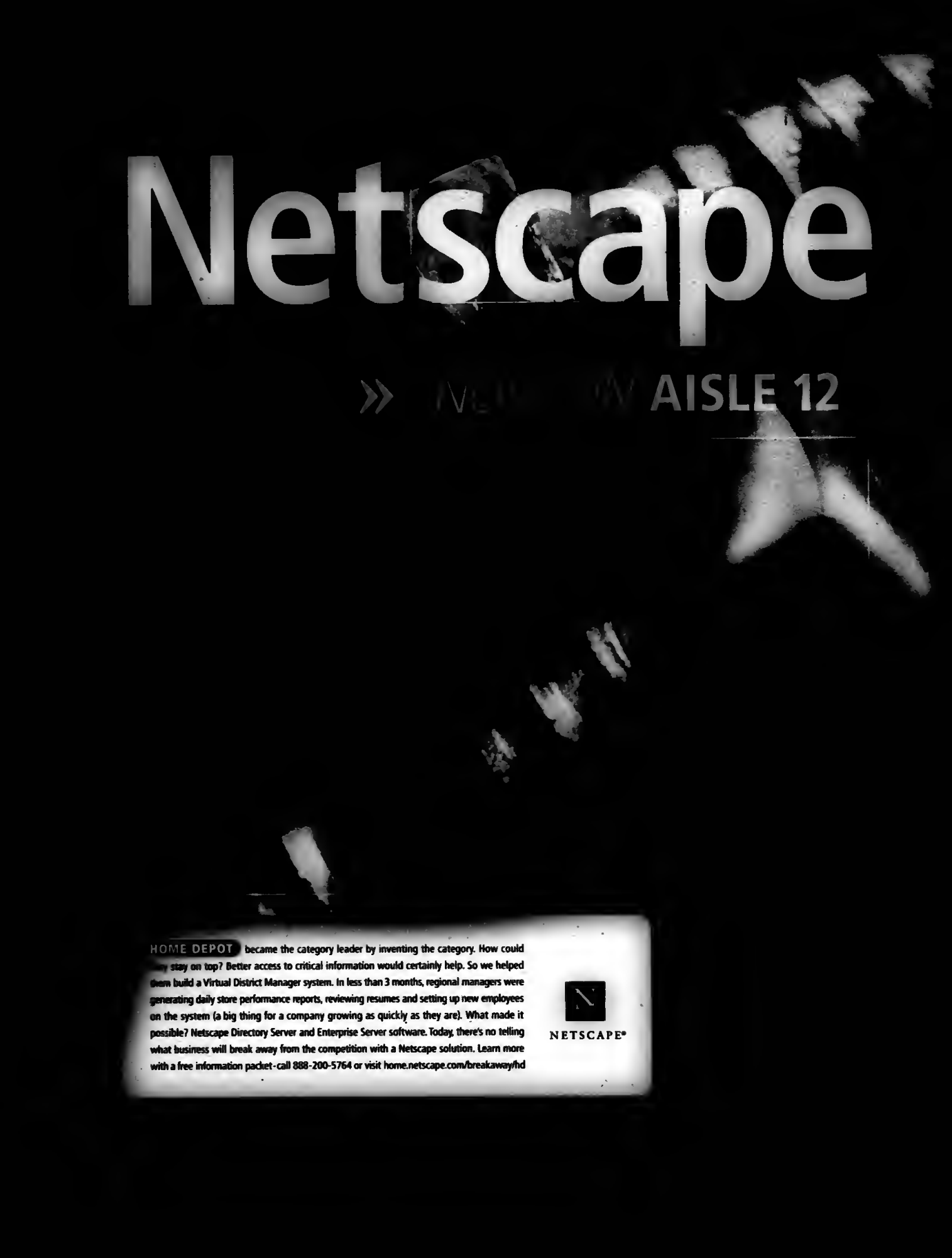
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Briefs

HOME PAGE

Does your organization encourage the use of a specific start page for your Web browser?

Base: 256 corporate users

Auction site woos corporate bidders

▸ *FreeMarkets claims its online bidding saves average buyer 15%*

By Sharon Machlis

WHILE INTERNET AUCTION sites such as EBay and OnSale bask in the public spotlight, a lesser-known industrial market-maker quietly expects to handle a half-billion dollars in goods such as coal and injection-molded plastic parts this year.

FreeMarkets OnLine Inc. doesn't conduct business on a public Web site, but instead brings computerized auction technology to the traditional bidding process. CEO Glen Meakem pegs the average buyer's savings at 15%.

"[This] creates tremendous power for buyers. You can bring suppliers from all over the world online, and they can interact," he said.

Impressed by FreeMarkets' online auction system

When manufacturers request bids from suppliers, typically they receive paper bids once and select the best of the bunch. FreeMarkets, however, puts together a private online auction that assembles various suppliers willing to bid on the work using FreeMarkets software and servers.

FreeMarkets will help manufacturers develop requests for proposals and scout potential suppliers, then help train those suppliers on how to use the bidding software.

During the auction, suppliers are identified only by number. When the bidding starts, they see prices submitted by competitors and then attempt to match or beat them.

FirstEnergy Corp. in Akron, Ohio, tested the system in October when 20 coal suppliers submitted real-time bids using FreeMarkets' BidWare and BidServer software.

"We think we did get a better price than our best estimates [of market prices]," said Jim Parks, manager of fuel supply at FirstEnergy. "We are planning to do it again."

Savings were in the "few percent" range, he said — but with an overall annual fuel budget of more than $600 million, that can add up. "Even with initial setup fees, we still saw a net savings," he said. FreeMarkets OnLine (*www.freemarkets.com*), based in Pittsburgh, typically charges buyers $50,000 to

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Sneaker retailer's intranet hits stride

▸ *Sharing information helps drive sales*

By Roberta Fusaro

BIRMINGHAM, ALA.-BASED athletic gear retailer Just For Feet Inc. wanted to stay more than a few steps ahead of competitors such as The Sports Authority in Fort Lauderdale, Fla., and New York-based Foot Locker.

So the company deployed an intranet about a year ago to ease the flow of information among stores and boost sales and efficiency. Now "it's pretty much taken on a life of its own," said David Meany, CIO at Just For Feet.

The company races against other sporting goods stores but stands apart from most as a theme retailer: In addition to offering more than 4,000 styles of sneakers, the stores provide music, videos, a kid-size basketball court and free popcorn to shoppers.

Still, the 10-year-old company is trying to improve its game: It bought the Sneaker Stadium chain in July and was slated to open 13 superstores during Thanksgiving week and 14 more nationwide early this month. It plans to have more than 140 stores and superstores open by February.

The company recently reported an increase of close to 90% in net income for the third quarter ended Oct. 31, compared with earnings in the same period last year. And in the retail sports shoe industry, such growth isn't a given: In the same quarter, The Sports Authority reported an operating loss of 32 cents per share — worse than Wall Street had expected but within the compa-

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MARC EDWARDENKO

• Web retailing

Green may be color of the season

THE FOLLOWING is more seasonal news from the world of Web retailing:

■Yes, you can order even your Christmas tree on the Web. For the second year, **Garden Escape** is selling trees from North Carolina's Blue Ridge Mountains. Pricing ranges from $50 for a "table-top" tree (3.5 to 4 feet) to $100 for a 7.5- to 8-footer. Early-November shoppers even got free Federal Express shipping. The site will accept tree orders through Dec. 9. (Garden Escape Inc. in Austin, Texas, *www.garden.com*)

■Every retail analyst expects a greener Christmas online this year, at least according to an **International Council of Shopping Centers** survey of three dozen industry watchers. When asked

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Briefs

HOME PAGE

Does your organization encourage the use of a specific start page for your Web browser?

Yes 38%

No 62%

Base: 256 corporate users

Source: Zona Research Inc., Redwood City, Calif.

Web conferencing

Netopia Inc. in Alameda, Calif., today is expected to announce Timbuktu Web Seminar, software that lets users share information on their desktop through any application with anyone over the Web or an IP network. Multiple users can see the shared information, permitting its use as a presentation, conferencing and collaboration tool, officials said. Pricing was unavailable.

WebObjects upgrade

Apple Computer Inc. has upgraded its WebObjects application server software for Windows NT and Unix. Version 4 adds more Java debugging features and a Java project builder assistant to simplify Java-only development. The upgrade also includes a "direct-to-Web" development assistant. Pricing ranges from $7,500 to $50,000 per server.

Store builder tool

Actinic Software Ltd. in San Jose, Calif., this month will ship Catalog 3.0, software for building and deploying online stores. Catalog 3.0 lets companies publish an illustrated online catalog, take encrypted orders over the Internet and process the orders in-house. The tool costs $399.

AOL gets first-timers

The country's largest consumer online service, America Online, says 20% of its Internet shoppers the past month were first-time Web buyers. And, 94% of those newbies said they would be willing to purchase again.

Auction site woos corporate bidders

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Auction site for corporate buyers

CONTINUED FROM PAGE 45

$200,000 per month for ongoing auction and consulting services and earns a commission from some suppliers.

Some of FirstEnergy's traditional suppliers declined to join the test — not because of the format but because they didn't have the kind of coal being bid, Parks said. Meakem acknowledged that some large, powerful suppliers refuse to engage in an electronic bidding war for business, especially for relatively small accounts with less clout. But he believes that as the business grows, participation will become more attractive.

In one case, FreeMarkets pooled the requests from one manufacturer's four plants — representing the first time the four had worked together on purchasing. The resulting auction attracted 28 suppliers. What had cost the plants a total of $9.7 million before cost them $7.8 million in the auction, Meakem said.

In the injection-molding industry, where the average supplier might sell $25 million to $30 million worth of goods each year, the chance to bid on $10 million in potential business is "pretty compelling," he said.

"While consumer E-commerce is getting the attention, it's really going to be the business-to-business applications that are less glamorous that are going to be generating most of the revenue," said Allen Bonde, an analyst at the Extraprise Group consultancy in Boston.

FreeMarkets' approach lets businesses that might not consider deploying an expensive, full-scale electronic procurement system take advantage of Internet-style bidding. It can "bring together a community that doesn't have a reason to be permanent," Bonde said. □

Color the Web green

CONTINUED FROM PAGE 45

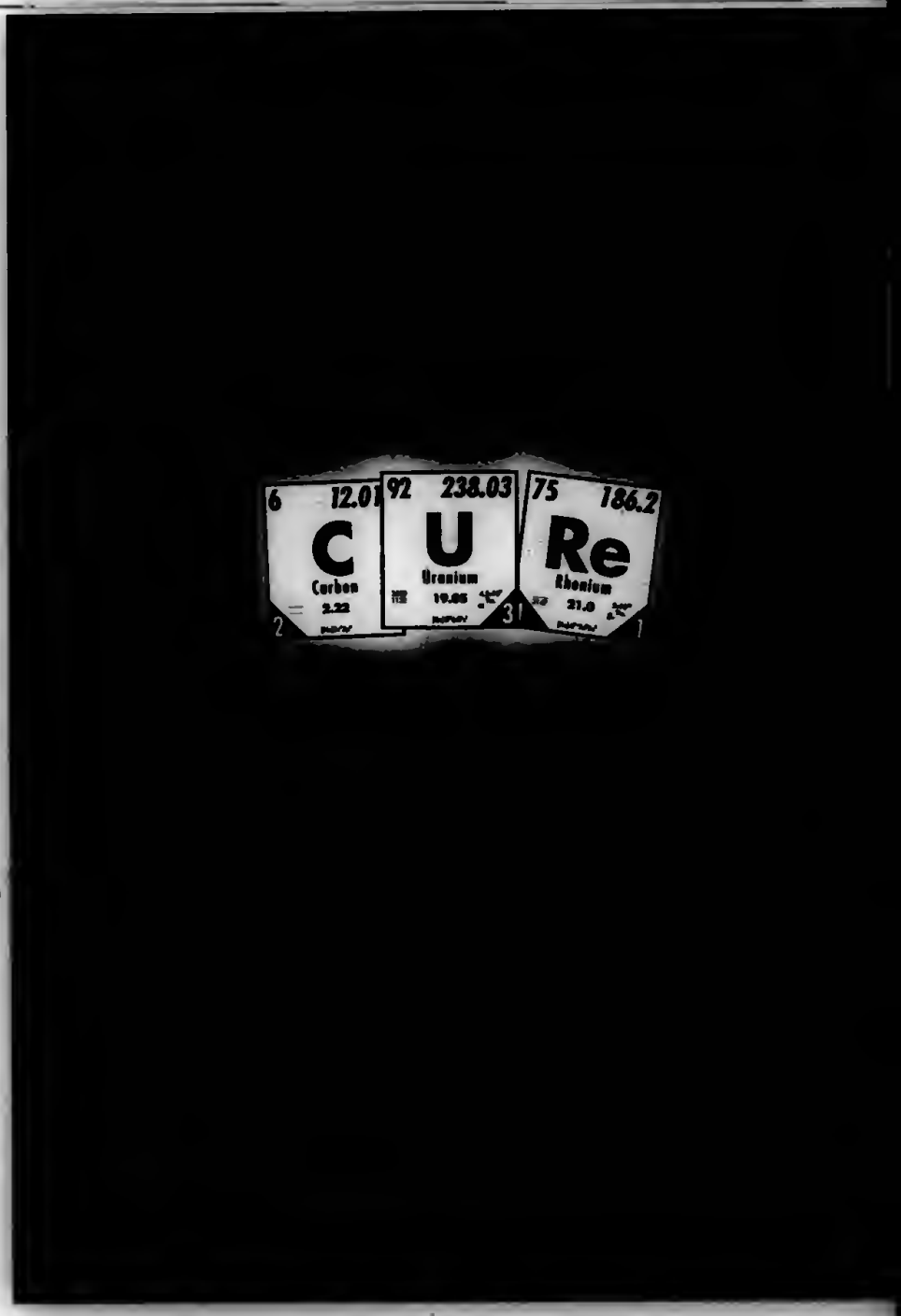
which retail format would account for more of the total holiday shopping pie this season vs. last, 100% cited online stores. In contrast, only 9% of analysts thought department stores would take a bigger slice of consumer dollars. (International Council of Shopping Centers in New York, *www.icsc.org*)

■ Nevertheless, many brick-and-mortar stores will benefit from the Internet, according to a survey of 1,000 Internet users by **Cyber Dialogue**. About 9 million shoppers will buy products in the physical world after first gathering information online, the firm estimates. Overall, Cyber Dialogue forecasts that consumers will spend $4.7 billion this holiday season after using the Internet — with $2 billion purchased directly on the Web and another $2.7 billion in person and by phone after first doing Web research. (Cyber Dialogue Inc. in New York, *www.cyberdialogue.com*).

■ **Egghead.com**, the lone major retailer to shut down all its stores to move solely onto the Internet, has redesigned its Web site to bring its three separate businesses — Egghead, Surplus Direct liquidation and Surplus Auction — under one virtual roof. The company says the site, based on technology from Oracle Corp., can serve up 20 million page views and process 10,000 orders per day. (Egghead.com in Vancouver, Wash., *www.egghead.com*)

■ For those seeking gifts for the sports fans in their lives, **CBS SportsLine** has added merchandise from **The Upper Deck Co. LLC**, including collectibles and memorabilia such as autographed goods. (SportsLine USA Inc. in Fort Lauderdale, Fla., *www.TheSportsStore.com*)

■ **The Disney Store Online**, with 2,000 items for sale, lets shoppers search for gift ideas by age group. The store offers electronic gift certificates — which still aren't available at many Web sites due to concerns over counterfeiting and other fraud. **Buena Vista Internet Group**, the Disney corporate division that oversees both Disney Online and ESPN's Web activities, said spending per consumer is up 20% over last year. (Disney Online Inc. in North Hollywood, Calif., *www.disney.com*) — *Sharon Machlis*



Intranet hits its stride

CONTINUED FROM PAGE 45

ny's range of expectations.

Smoother flow of information is at least part of the retailer's success, Just For Feet officials said.

Before the intranet, "It was tough to hire people with the skills required to post HTML pages. And it was tough to get information in a timely manner to the stores," said Brandon Scordino, webmaster at the company.

Previously, pricing, sales and merchandise reports were shipped to stores twice weekly via Federal Express — and usually arrived after most stores were already into their weekend sales.

The corporate intranet — powered by Verity Inc.'s KeyView Pro plug-in — lets anyone with basic word processing and spreadsheet skills post charts, forms and databases to an intranet. The items then can be viewed by others in the format they're used to, Scordino said.

The cost of implementing the system was small compared with the "soft" benefits gained, Meany said. He declined to provide numbers, "but it's taken the guesswork away from store managers and has given them several more days to plan or execute store sales and promotions," he said.

Jon Auerbach, Just For Feet's regional manager for the East Coast, said the intranet portal went live at the Birmingham store about five months ago, just prior to its "back to school" campaign. The pace of the store's workflow picked up instantly, he said.

Various departments at that store post about 10 reports or updates daily or weekly to the intranet, which can be accessed by about 125 stores. That might include sales figures, advertising updates and price changes. Auerbach said store managers now can use that information immediately to drive sales.

The store already has seen a 10% boost in sales but has gained a lot more than that in efficiencies, Auerbach said. Staffers just update the information once and post it to multiple managers at multiple stores, he said. □

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NEW PRODUCTS

ACTIVE CONCEPTS LTD. has announced Funnel Web 2.5 Professional, Windows-based Web site analysis software.

According to the Carlton, Victoria, Australia, company, the software's new Mean Path feature reports on the average path being taken through the overall Web site. A new regional reporting feature displays the number of hits by seven geographic regions, and a new off-site processing feature enables users who host sites at Internet service providers to log in to the provider's server and download the log file for processing.

Funnel Web 2.5 Professional costs $499.

Active Concepts
613-9348-2122
www.activeconcepts.com

IDREAM SOFTWARE has announced Jio 1.0, Java-based, electronic-commerce software that personalizes the online buying experience.

According to the Bothell, Wash., company, the set of Web components and software tools lets users create interactive catalogs without any programming expertise. The catalogs let online shoppers drag and drop items sold on a Web site into a preview space where they can mix, match and compare offered products. It requires no plug-ins for viewing and was designed to connect with existing electronic-commerce databases.

A single server license costs $14,995.

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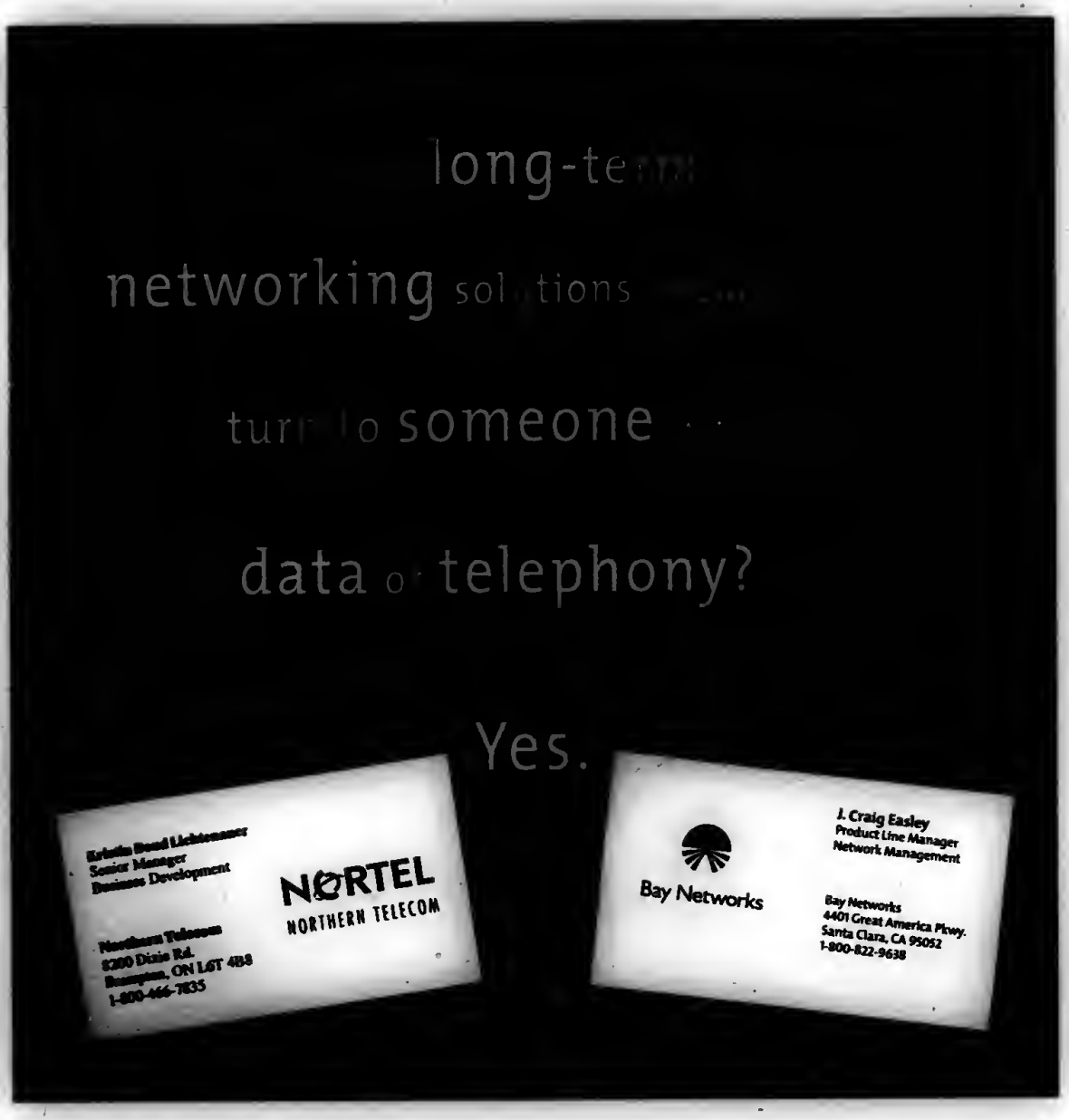

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The Enterprise Network

LANs • WANs • Network Management

Briefs

TELECOM COSTS

Worldwide telecommunications costs for Internet fax providers

- Worldwide telecommunications expenses for fax services today: **$93B**
- Of that, about **$1B** comes from Internet providers and fax service bureaus.
- In 2002, the **$1B** is estimated to grow to **$24B**

Source: Pulvecom, Melville, N.Y.

Free-mail explodes

Microsoft Corp. last week said the membership for its free Hotmail E-mail service has reached more than 30 million active accounts worldwide.

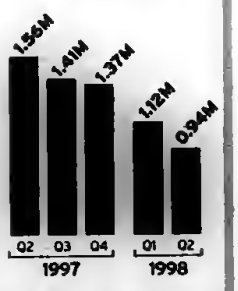
Hotmail has added 20 million members since the beginning of the year, officials said in a statement. They attributed the growth partly to Microsoft's redesign of its portal site, MSN.com, which has incorporated Hotmail access under the Microsoft Network.

Internet E-mail

Internet service provider Worldcom Online Corp. last week said it has chosen Internet Services Corp.'s OnNet communications software to deliver Web-based messaging and collaboration services to its customers. The software was designed to let users collect E-mail and faxes from anywhere on the Internet.

Token Ring hub sales slide

Worldwide port shipments



Source: Dell'Oro Group, Portola Valley, Calif.

Merger fallout: Meld networks, IT

▸ *One side has plenty of integration experience*

By Jaikumar Vijayan

JEFFERSON-SMURFIT CORP. just finished a two-year effort to integrate its network infrastructure. But before the information technology department could breathe a sigh of relief, a merger is forcing it to face another major integration.

The manufacturer of paper-based packing material completed a mid-November merger with Stone Container Corp. Based in Chicago, the new Smurfit-Stone Container Corp., which produces corrugated containers, folding cartons and retail bags, has 35,000 employees in more than 350 facilities worldwide.

Smurfit-Stone must now meld two IT organizations with different hardware standards and software and network infrastructures, said Gary Weaver, a network communications manager.

Jefferson-Smurfit's Gary Weaver wants to standardize two networks to support various hardware platforms

"We are a very standardized IS organization, [at Jefferson-Smurfit], whereas [the IS organization at] Stone is more independent and without a strong set of standards across the company," Weaver said.

For instance, although Jefferson-Smurfit has standardized on two vendors for its PCs and PC server hardware, Stone's desktop environment represents a medley of PC vendors.

And although both organizations have SNA and IP networks, the network at Jefferson-Smurfit is more tightly integrated as a result of the recent integration work.

"We would like to put in a core standardized network that will continue to support the diversity of the hardware platforms" while taking on new client/server-based application workloads, Weaver said.

EXPERIENCE COUNTS

Inspiration for the new effort will come from Jefferson-Smurfit's experience in the past two years.

Before the upgrade and integration project, the company had little IP-based LAN or WAN traffic either inside headquarters or with its 150 facilities across the U.S.

A large IBM SNA network basically pumped core financial

Merger, page 50

Members of the Multiservice Switching Forum

- MCI WorldCom Inc.
- Bellcore Inc.
- Alcatel Corp.
- British Telecom PLC
- Lucent Technologies Inc.
- Siemens AG
- Telia AB
- Cisco Systems Inc.
- AT&T Corp.
- Ascend Communications Inc.
- Fujitsu Network Communications
- Nortel Networks
- Telecom Italia
- US West Inc.

Group eyes network standards

By Matt Hamblen

USERS AND ANALYSTS have welcomed a new standards group as a step toward greater wide-area network reliability and quicker access to new services, such as voice transmission over the Internet Protocol.

Officials at the Multiservice Switching Forum, launched by 14 carriers and network hardware vendors (see chart above), have pledged to help carriers deploy open switching systems with parts from multiple makers. The group was conceived by MCI WorldCom Inc., Cisco Systems Inc. and Bellcore Inc.

Within 12 to 18 months, the forum is expected to implement technical standards for switching systems that support Asynchronous Transfer Mode, frame relay or IP services, as well as a broad range of access methods, including wireless data transmission, cable modems and Digital Subscriber Line.

Under the new standards, switches and devices that now are incompatible would work together within the carriers' field offices. That means, for exam-

Group, page 50

ADSL slow to win over big users

By Matt Hamblen

MORE THAN a dozen large telecommunications companies have announced copper-based Asynchronous Digital Subscriber Line (ADSL) high-speed data services so far, and a variety of trials are under way.

But analysts said that there still aren't many large corporate users signed up, and some view that as a sign that users are skeptical of ADSL's reliability, despite recent optimism by the carriers.

"Big users have heard about ADSL, and there are lots of trials under way, but people want to see some concrete applications," said analyst Shizue Davis at Walsh-Lowe Constantine Group LLC in Hoboken, N.J., last week. "There have been trials going on since 1992, so there have to be problems with it."

One big problem is cross talk, or noise over the wires, which causes ADSL quality to decline

SAVING TIME

Time to download the entire *Encyclopaedia Britannica*

With ADSL (1.5M bit/sec.)	**31 minutes**
With standard modem (28.8K bit/sec.)	**27 hours**

Source: Amaritech Corp., Chicago

at distances of more than 1 mile. "The problems are harder to solve than the carriers are letting on," Davis said. ADSL uses existing copper lines to greatly expand bandwidth at low cost, but Davis suspects that carriers are encountering trouble with aging copper lines that can drop data or allow more interference.

Several ADSL Forum officials at a Nov. 17 Beverly Hills, Calif., gathering of equipment vendors and service providers reported

ADSL, page 50

Alteon switches balance the load

By Bob Wallace

Alteon Networks Inc. this week will announce software that lets companies use its load-balancing Ethernet switches to direct calls to the server best-suited to process them, wherever the server is located on the network.

Previously, the switches balanced traffic loads by directing calls to the best-equipped local server. ACEdirate 5 software enables them to send calls to geographically dispersed servers.

That gives managers the flexibility to locate servers,

Alteon, page 50

Merger fallout: Meld networks, IT

CONTINUED FROM PAGE 49

information in batch form daily from each of the 150 locations back to centralized mainframes. A more recent but smaller IP-based network handled traffic, such as E-mail, within and among sites that had Windows NT-based networks.

SUPPORT SUCCESS

The desire to move to a more online computing environment drove the company to spend most of last year and the first half of this year rolling out Windows NT networks in each of its locations and connecting them via a massive frame-relay network back to headquarters.

Today, three data centers and a 150-node wide-area network support 16,000 employees at the company.

Specialized routers from Cisco Systems Inc., equipped with Channel Interface Processors and Channel Port Adapters, provide tight links to SNA and IP networks.

A Cisco technology called Data Link Switching allows Jefferson-Smurfit to encapsulate SNA traffic into packages that can be transmitted over the IP network, reducing networking management issues.

Such an integrated network lets Jefferson-Smurfit hang on to its older SNA-based environment while providing the infrastructure for new client/server applications — such as the PeopleSoft Inc. financial packages it is now implementing, Weaver said.

Cisco's technology lets corporations more tightly connect SNA networks with IP networks, according to Bill Lesieur, an analyst at Technology Business Research Inc. in Hampton, N.H.

Previously, users linked the two environments via gateways and emulation technology.

Cisco's technology allows mainframe networks to be attached directly to IP networks, increasing their performance and lowering management costs. □

Alteon

CONTINUED FROM PAGE 49

critical applications and content outside a single data center — and closer to users — without jeopardizing network performance. And if one site's server is knocked out, the Alteon switch there redirects calls to a server at another site.

The Alteon switches use a proprietary communications protocol to monitor the health and performance of all servers and their proximity. That's how they determine which server is best-suited to handle a call.

Locating servers close to users isn't always enough. If the local server gets overloaded or goes down, performance still suffers. The Alteon switches were designed to provide access to a secondary server at a more distant site if the local server drags. That provides users the best service possible.

Simply connecting servers to the network close to users doesn't guarantee acceptable performance, said Esmerelda Silva, an analyst at International Data Corp., a research firm in Framingham, Mass., and a sister company to *Computerworld*. Switches such as Alteon's with ACElerate 5 can help managers provide users with reliable, secure and efficient server access regardless of location, she added.

ACElerate 5 offers another key benefit: The switches can direct traffic to servers optimized for processing specific requests such as transactions and file transfers. That frees managers from the need to keep — and continually synchronize — the same content on many or all servers.

Load-balancing capabilities also are built in to special server-based software or software/hardware packages. But switches with the technology are a more attractive option, said Ted Julian, an analyst at Forrester Research Inc. in Cambridge, Mass.

Vendors began to add load balancing to switches late last year, but only nonswitch systems can handle load balancing for local and distant server sites using the same package.

ACElerate 5 is now shipping with all new ACEdirector 2 and ACEswitch 180 server switches. Users who already bought Alteon switches can buy the software for $3,000.

Other load-balancing switch vendors include Foundry Networks Inc. in Sunnyvale, Calif., and ArrowPoint Communications in Westford, Mass. □

Group seeks standards

CONTINUED FROM PAGE 49

ple, they could transfer voice traffic to data networks and vice versa, analysts said.

The chief benefit of the forum will be to help carriers bring new services — such as voice-over-IP networks — to market more quickly, said Eric Hinden, an analyst at The Yankee Group in Boston. But corporate networks will also benefit from the standards effort, one user group spokesmao said.

"You want vendors to be interoperable. The best example is if you had all your eggs in the frame-relay basket of one carrier last spring — that wouldn't have been good," said Brian Moir, counsel and spokesman at the International Communications Association, a large user group based in Dallas. Moir was referring to AT&T's nationwide frame-relay network outage, which left network managers scrambling to find backup systems.

If the standards group is successful, a network manager could conceivably switch data transmission from one type of network (such as frame relay) to another (such as Integrated Services Digital Network) almost immediately, even if the two services are provided by two separate carriers, Moir theorized.

"These kinds of standards would give managers the ability to move seamlessly back and forth," providing the flexibility and reliability senior executives expect, Moir said. □

NEW PRODUCTS

LANART CORP. has announced the FTS 1620 and the FTS 2420, 10/100M-byte Fast Ethernet switches with 16 ports and 24 ports, respectively.

According to the Needham, Mass., compauy, the switches can be installed between the network fiber backbone and the twisted-pair desktop component. Both offer monitoring capabilities, 400M-bit port trunking capabilities and built-in Web-based or console-based port management.

The 16-port switch costs $2,495, and the 24-port switch costs $3,095.

LANart
(800) 292-1994
www.lanart.com

ELRON SOFTWARE INC. has announced Bandwidth Optimizer 2.0, Windows NT-based software designed for Internet connection bandwidth management.

According to the Cambridge, Mass., company, the software has a Web-based management console and uses both queuing and TCP-rate control in bandwidth shaping. Bandwidth usage priorities can be based on users, time of day, traffic class — such as file transfer protocol or the Web protocol HTTP — or IP source or destination.

Pricing starts at $3,995 for 25 users.

Elron Software
(617) 292-3000
www.elronsoftware.com

NETORIA INC. has announced SFSEND, software that lets managers of Novell Inc.'s NetWare display system news or send immediate pop-up messages.

According to the Orem, Utah, company, the software helps administrators keep users informed of network news. It integrates with NetWare Directory Services (NDS) so messages are displayed based on NDS user, role, group and container associations.

A "user status" feature displays which users are connected to a given server and counts the total oumber of connected users.

List pricing varies from $11.50 to $3.45 per node depending on quantity.

Netoria
(801) 227-0722
www.netoria.com

ADSL slow to gain

CONTINUED FROM PAGE 49

that some customers are in the midst of arranging services for their telecommuters or even for campus settings.

For example, an official at Cisco Systems Inc. told members of the Forum that the company is negotiating with SBC Communications Inc. for a package deal to serve its telecommuters in the San Fraocisco Bay area.

And Ameritech Corp. officials announced they have recently signed the University of Michigan for service to 20,000 off-campus users, although an official said the deployment will be to limited numbers.

TARGETING BUSINESS

Several of the carriers providing ADSL have already filed for permission with the Federal Communications Commission to charge for a business-class ADSL service that would guarantee bandwidth and service levels. Bell Atlantic Corp., for example, said it expects to offer a business-class version of ADSL with service guarantees next spring, but so far has announced pricing of up to $109.95 per month per line for 7.1M bit/sec. of downstream bandwidth. Ameritech is offering 2M bit/sec. downstream bandwidth for $119.95 per month.

"I think it is very clear that the [carriers] are targeting large businesses and will be going to corporate IT managers and bringing this equipment in a service platform used for telecommuters and remote branch offices," said Bill Rodey, vice chairman of the ADSL Forum.

"ADSL is the cheapest way to get bandwidth that exists, since it is 20 to 30 times faster than ISDN and significantly below the cost of fractional T1 costs," Rodey said. He said interoperability standards should help convince corporate customers to consider ADSL.

The American National Standards Institute has adopted a standard for full-rate ADSL and the International Telecommunications Union will finalize a standard for Universal ADSL next June.

As for cross talk on lines, Rodey would say only that the carriers "understand the issues and the technical people are working on it." □

Software

Databases • Development • Operating Systems

Briefs

UP ON ERP

Projected growth of the U.S. market for education and training services related to enterprise resource planning software

1997	$770M
1998	$1.55B*
1999	$1.675B*

*Projected; totals based on market research and revenue estimates from ERP vendors and other training firms

Source: International Data Corp., Framingham, Mass.

Help for hiring

Display Solutions Inc., a start-up in Westwood, Mass., this week plans to introduce a collaboration workflow planning and hiring application that automates the process of posting and filling jobs. Pricing for the Java-based Employ Collaborative Hiring System software starts at $250,000. The software is due by April. Icarian Inc. in Sunnyvale, Calif., last month announced a similar product. It's scheduled for release in February.

Middleware deal

Southwest Airlines Co. in Dallas plans to use a middleware package from Iona Technologies Inc. in Cambridge, Mass., to help pull together applications that were developed with varied languages and database platforms. Iona's Orbix will also help Southwest more easily add technologies and applications in the future, the airline said.

ERP sales alliance

Austin, Texas-based Trilogy Software Inc. last week said it had signed on three more enterprise resource planning (ERP) software vendors to resell its sales and marketing applications. They are Atlanta-based American Software Inc.; JBA International in Rolling Meadows, Ill.; and Chicago-based System Software Associates Inc. Trilogy, which now has reseller deals with 20 ERP vendors, also is setting up a division focused on indirect sales.

New apps keep hits spinning into stores

By Craig Stedman

THE HITS KEEP ON coming, but getting them to record stores is becoming more complex for Warner/Elektra/Atlantic Corp.

National chain stores increasingly dominate the retail music scene, and the chains are demanding more flexible distribution methods from manufacturers: more frequent orders for smaller batches of CDs and cassette tapes that have to be delivered faster, all in the interest of cutting stores' inventory costs.

ORDER PROCESSING

That's putting a big squeeze on the 20-year-old collection of regional minicomputer applications that Warner/Elektra/Atlantic (WEA) now uses to process orders, check credit, schedule deliveries and bill retailers. So the Burbank, Calif.-based subsidiary of Time Warner Inc. is launching a two-year project to install a centralized order-management and invoicing system.

"We need to get out of that decentralized mode," said Larry Weiss, WEA's executive vice president of operations and information services. "This is a very volatile business, and it changes rapidly. But it was becoming very difficult and time-consuming to maintain our current systems."

The regional systems have been tied together so that orders can be jointly filled by WEA's five U.S. warehouses. But changing the applications and synchronizing them to keep up with the 25 million-plus transactions that the company processes each year is a chore, said Weiss, who runs information technology and business operations such as order entry and warehousing.

The regional setup also "was really beginning to creak" for the business users who rely on it every day, said Burt Margolis, vice president of management information systems at WEA. For example, looking at orders on a national basis is "very complicated because the data is spread over the whole country," he said.

The same kind of issues face manufacturers and distributors of clothes, books and other consumer products with short shelf lives, said Greg Girard, an analyst at AMR Research Inc. in Boston.

"The Wal-Marts of the world are demanding that [manufacturers] serve them better and substitute information for

Apps for hits, page 52

Snapshot

APPLICATION SPECIFIC

Growth in worldwide sales of enterprise applications, by functional category

*Projected	1997	1998*	Change*
FINANCE AND ACCOUNTING			
Client/server software	$3.406B	$4.588B	35%
Other applications	$1.881B	$1.529B	-19%
Total	$5.287B	$6.118B	16%
HUMAN RESOURCES AND PAYROLL			
Client/server software	$1.221B	$1.592B	30%
Other applications	$711M	$784M	10%
Total	$1.932B	$2.376B	23%
MATERIALS MANAGEMENT			
Client/server software	$1.596B	$2.309B	45%
Other applications	$988M	$811M	-18%
Total	$2.583B	$3.121B	21%
MANUFACTURING			
Client/server software	$2.088B	$3.072B	47%
Other applications	$2.754B	$2.514B	-9%
Total	$4.842B	$5.586B	15%
ALL CATEGORIES			
Client/server software	$8.259B	$11.561B	40%
Other applications	$6.119B	$5.638B	-8%
Total	$14.419B	$17.2B	19%

Note: All figures include revenue from new software licenses and maintenance contracts; all percentages have been rounded off

Source: International Data Corp., Framingham, Mass.

IBM's VisualAge for Java 2.0 brings ease of coding to Java

By Howard Millman

IN ITS ENTERPRISE EDITION of VisualAge for Java 2.0, IBM delivers a heavyweight product that's well-suited to application developers. It pulls ahead of competitive enterprise-class development tools from Inprise Corp. and Microsoft Corp. by introducing Data Access Beans that extend connectivity to relational data residing in legacy systems.

The Enterprise Edition delivers several new features: team support, high-performance compilers optimized to generate native executables to run on platform-specific servers, plus support for Tivoli Systems Inc. management software and the Common Object Request Broker Architecture.

There's also a professional edition, which caters to single

VisualAge, page 52

PRODUCT REVIEW

▶ *VisualAge for Java 2.0*

OVERALL GRADE B+

IBM
Armonk, N.Y.
(800) 426-3333
www.software.ibm.com/ad/vajava

Price: Enterprise Edition: $2,999; Professional Edition: $99

Pros: Supports Java Development Kit 1.1.6; provides Data Access Beans to access JDBC- and ODBC-compliant relational databases and Proxy Beans for remote access, plus components to access SAP business objects

Con: Minor usability problems

Review: VisualAge for Java

CONTINUED FROM PAGE 51

developers and small teams.

I worked with the Enterprise Edition and found that it brings to Java a Visual Basic-like ease of coding, without the limitations of Visual Basic's Win32-centric focus. It also provides the type of improved productivity and superior portability of C++.

Although VisualAge doesn't support the wide variety of third-party add-ins that C++ does, it now includes an application programming interface for integrating third-party add-ins that could make it easier to add new components and tools. Another new feature, JavaBeans, simplifies Web-enabling relational Java Database Connectivity databases, a feature that should interest electronic-commerce merchants.

NEW FILE FORMATS

One innovation in VisualAge is the elimination of the familiar file-based model for storing Java source code, keeping the code in a hierarchical repository of program elements. Enterprise Edition has a shared repository on a server. That architecture offers powerful source control with a tightly structured ownership scheme. Every project, package and class has a nominated owner.

That architecture lets developers in large-scale team development projects concentrate on the logical organization of code without having to worry about file names or directory structures.

Like most development environments, VisualAge includes an interface designer, Visual Composition Editor, that lets you arrange JavaBeans (controls) on a display service. VisualAge improves on the concept by letting you set up connections between objects, linking the events of one to the methods of another. That lets you produce elementary Java components without writing any code.

Unfortunately, when you do write code, the coding window displays just a single method's source at a time. If you switch to another method, the current method's source is automatically saved. That can generate annoying compilation errors. A potentially serious problem occurs when you test your applet. Any

Apps for hits

CONTINUED FROM PAGE 51

inventory," Girard said. That means product deliveries have to be precisely executed on a national scale, he said. "But many companies are just waking up to this."

WEA, which sells recordings by artists such as Madonna, R.E.M., Alanis Morissette and Phish, plans to replace its regional applications with a central Unix server running Oracle Corp.'s accounting software and an order-management system from Industri-Matematik International Corp.

"We need to get out of that decentralized mode"

Keeping all order and shipment data in one place should make things easier for users and IT staffers alike, Weiss said. WEA also expects to become more adept at reacting to new service demands from individual retailers, which Weiss said would be "a big plus."

But getting there won't be easy. The project team started its training last week, but the installation is expected to take at least 24 months and involve 40 to 50 employees at its peak.

"We're putting in a pretty elaborate system here," Weiss said. And WEA needs to tread carefully to avoid any delivery hiccups while making the switch, he said. "We have to get the product into stores quickly when [a song becomes a hit], or we lose the chance to make sales," he said. □

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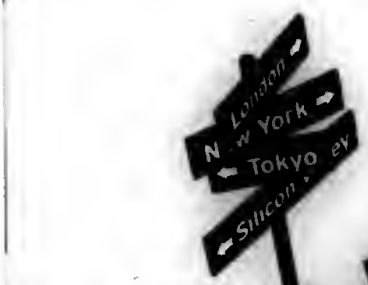


COMPUTE
The World's Te

changes made in the current source window aren't automatically saved and, without warning, VisualAge runs the previous version. When you type source code, an automatic code completion feature provides a list of language elements by context. I prefer Microsoft's Intellisense, a feature that progressively suggests statements.

If your environments extend significantly beyond Windows, or the way your team builds code suits VisualAge's hierarchical source-control structure, the Enterprise Edition will suit your needs. If your requirements are more modest, consider Inprise's JBuilder or Microsoft's Visual J++. □

Millman operates Data System Service Group LLC, a consultancy in Croton, N.Y. You can reach him at (914) 271-6883 or hmillman@ibm.net.

Scala's ERP software going euro

By Jeanette Borzo
PARIS

SCALA BUSINESS SOLUTIONS N.V. plans to release a version of its enterprise resource planning (ERP) software next month to accommodate the European Union's common currency, the euro.

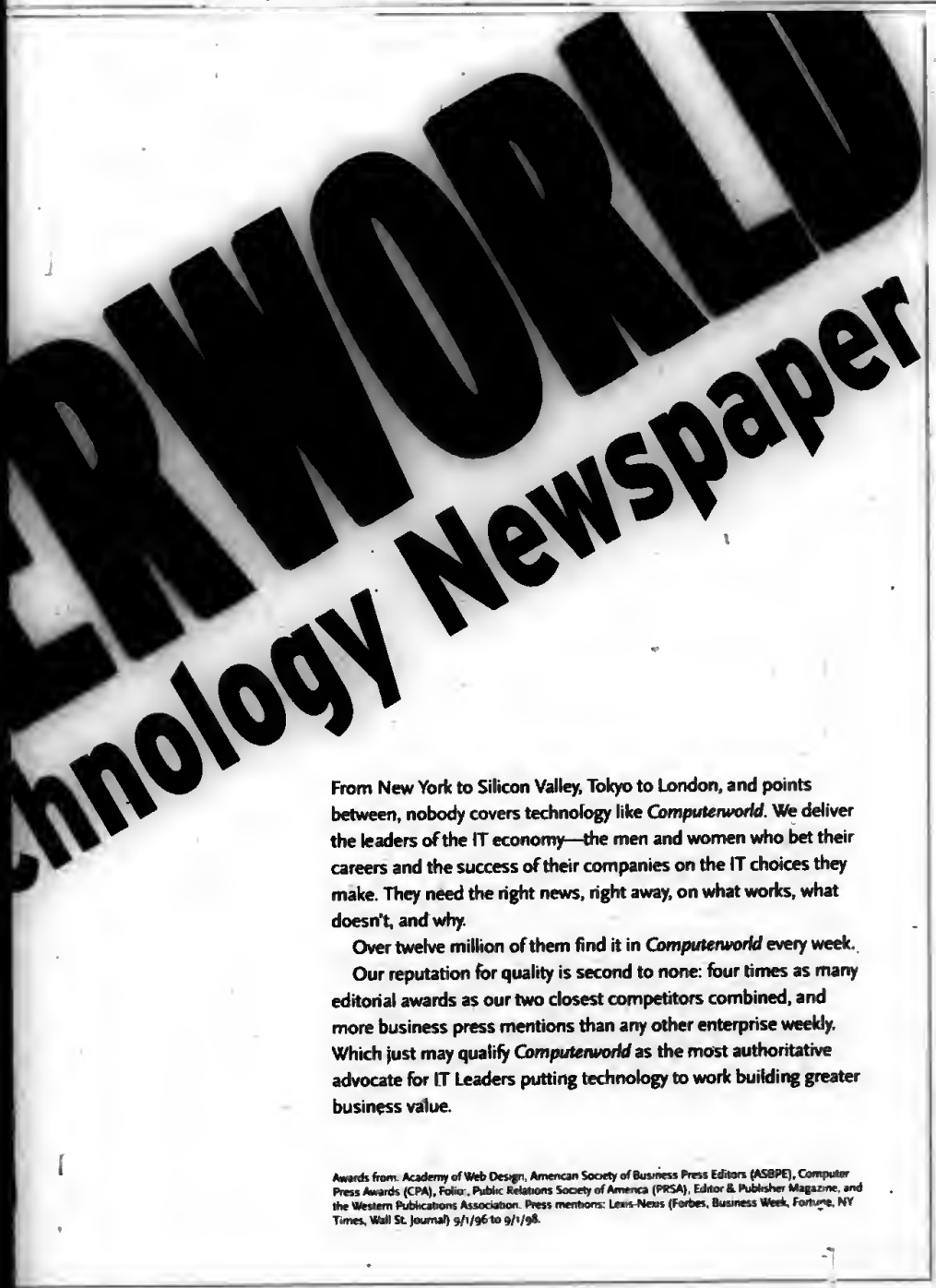
Scala 5 is an ERP product based on Microsoft Corp.'s Windows NT and SQL Server. It has 7,200 active licenses and 60,000 users, having grown beyond its original market of smaller Nordic companies to target companies with five to 100 users per site at locations throughout the world, according to Max Federmann, a senior vice president at Scala. Scala 5.1 introduces euro functionality, including features for currency triangulation. It will be available free to current customers this month.

The gradual introduction of the euro to 11 European Union countries begins next month.

In the first quarter of next year, Scala also plans to ship an electronic-commerce version for companies that want to sell products over the Web. It will offer functions for sales orders, inventory management and customer information systems, the company said.

Scala Business Solutions was founded in Sweden but now is based in Amsterdam. □

Borzo writes for the IDG News Service in Paris.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NEW PRODUCT

COGNOS CORP. has announced PowerPlay 6.0, an online analytical processing (OLAP) tool that runs on Windows 95, Windows 98 and Windows NT 4.0.

According to the Burlington, Mass., company, PowerPlay 6.0 helps users turn raw transaction-based data into reports on how business drivers such as time, products and geographical regions interact. The new version has enhanced reporting and will support SQL Server OLAP Services in Microsoft Corp.'s SQL Server 7.0. Other supported data sources include IBM's DB2 OLAP Server and similar products from NCR Corp. and Oracle Corp.

Pricing for PowerPlay 6.0 starts at $695 per user.

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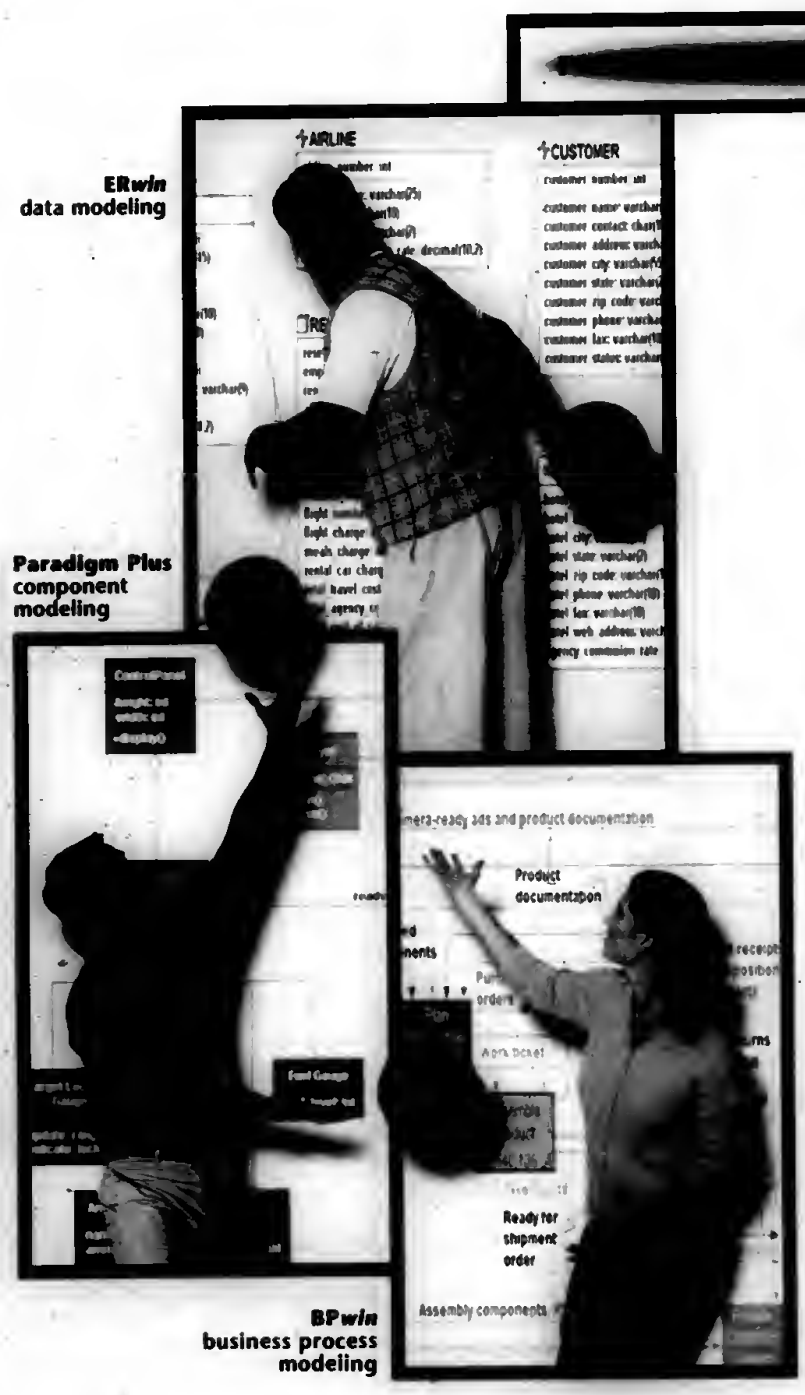

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Servers & PCs

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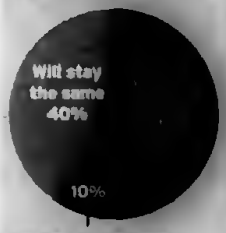
Briefs

How will the year 2000 issue change your laptop-buying habits in the next two years?



Base: Survey of 50 Fortune 1,000 companies

Source: Forrester Research Inc., Cambridge, Mass.

Server storage

Hitachi Data Systems last week announced the Hitachi Freedom Storage 5800 storage subsystem for use with clustered Windows NT, Unix and NetWare server environments. Positioned for use in storage-area network configurations, the system uses Hitachi's 3.5-in., 18G-byte disk drives and can hold as much as 1T byte of data in a single rack-mounted model. It supports as much as 4G bytes of cache memory and as many as four Fibre Channel connections or eight Ultra SCSI connections. It's available immediately. Pricing for the system ranges from $45,000 to $140,000.

Scanner on a chip

National Semiconductor Corp. in Santa Clara, Calif., has developed an integrated circuit that squeezes virtually all the electronics needed for a color image scanner onto a silicon chip smaller than a thumbnail, the company said. Dubbed Shuttle, the chip is expected to find its way into products by mid-April, company spokesman Mike Brooks said. The [illegible] won't identify [illegible] items that have [illegible] the product. The [illegible] of separate [illegible] scanner has [illegible] the part [illegible] as [illegible] the [illegible]

Tape helps bank check on checks

▸ *Archive alternative is cheaper, more reliable*

By Nancy Dillon

LIKE THOSE at many banks, Fulton Bank's microfilm-based check-processing system was past its prime.

To access a check, staffers had to look up a sequence number, locate the film and load it. "We get about 50 look-up requests per hour, and this is only increasing," said Roxanne Sebastian, data center production manager at Fulton Bank, a subsidiary of Fulton Financial Corp. in Lancaster, Pa. "To maintain or try to improve customer service, we needed a faster process."

ARCHIVING ADVANCES

Sebastian worked with an integrator to replace the microfilm with high-availability tape. The new system, completed in March, captures the image of each check as it goes through the sorter, indexes it and then archives it to a Magstar MP tape library from IBM. Magstar tape drives were designed for near-online performance. They work with low-capacity tapes and have one of the fastest access times in the industry.

Analysts said the popularity of high-availability tape is growing at companies such as banks and hospitals, where archives are used on a regular basis. High-speed tape "is so much faster than film," said Kris Newton, an analyst at Strategic Research Corp. in Santa Barbara, Calif. "And when you compare it to optical storage, it's much cheaper."

Aside from Magstar MP, Newton said there are few other high-availability tape products on the market. Storage Technology Corp. in Louisville, Colo., offers libraries with high-performance TimberLine tape. But most other vendors are focused on high-capacity products.

"Most people are trained that bigger is better. But the bigger

Tape, page 58

Roxanne Sebastian of Fulton Bank says the tape archiving system cuts the time required to find old checks and offers better image quality than microfilm.

Recycling may hike EU PC prices

By Mary Lisbeth D'Amico
MUNICH, GERMANY

A GERMAN IT trade association said it's concerned about a European Union proposal on recycling electronic equipment that could drive up the cost of PCs and peripherals by 10% to 15%.

The German Information Technology Manufacturers Association (FVIT) is concerned that the draft proposal, if put into effect, will squeeze consumers and small and midsize businesses in Europe. Alone, the disposal of old computers could cost European computer purchasers about $5.3 billion, according to an FVIT statement. Similar costs can be anticipated for other types of electronic devices, the FVIT said.

"This strong regulatory corset points to economic and ecological solutions which make no sense," the FVIT said in the statement.

Called "Waste from Electrical and Electronic Equipment," the European Commission draft proposal calls for purchases of new computers and other electronic equipment to finance disposal of old equipment, according to the FVIT.

The European Commission directive is in the form of a second draft. A third is expected to be drawn up this month.

The FVIT maintains that it's possible to work out a more flexible arrangement that is just as environmentally friendly but cuts costs in half. It points to its own proposal for recycling computers and peripherals in Germany as an alternative.

That proposal calls for vendors to pay the cost of disposing of computers and peripherals, but asks local governments to take on the cost of collecting and transporting the equipment. □

D'Amico writes for the IDG News Service in Munich.

Briefs

How will the year 2000 issue change your laptop-buying habits in the next two years?

Will buy fewer laptops

Base: Survey of 50 Fortune 1,000 companies

Source: Forrester Research Inc., Cambridge, Mass.

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D'Amico writes for the IDG News Service in Munich.

Software links Palm handhelds, Web

By Matt Hamblen

IP Systems Inc. last week announced software that gives Palm III handheld users access to the Web if they have a two-way pager.

The Dallas-based company said it expects that business travelers will find the InfoBeam software useful in retrieving time-sensitive data such as weather reports and stock quotes on the Palm's larger screen, as compared with the limited space on a pager screen.

Analysts said wireless connectivity to the Web for 3Com Corp.'s Palm device is a great idea and something users want. But analysts said they were worried about the costs and inconvenience of carrying two devices.

InfoBeam "seems not only costly, but kludgey," said Jill House, an analyst at Framingham, Mass.-based International Data Corp., a sister company to *Computerworld*. "It tends to add up in ways not too useful for the business user."

InfoBeam software will be available early next year for $9.95. The software will be bundled with a Glenayre AccessLink pager for $209.

The Web retrieval service will be free for 30 day. It then will cost $4.95 per month. InfoBeam users must have a Palm III with an infrared port and must pay for a monthly pager service.□

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Answers for the Information Age

Tape

CONTINUED FROM PAGE 55

the capacity, the longer it usually takes to find what you need," Newton said.

The new Fulton Bank system also has a more sophisticated indexing system. "We can look up checks by account number or serial number," Sebastian said. "So if a customer calls in who wrote out a check but forgot to record the amount, we can take their general information and help them right away."

She said her group is saving up to 15 minutes per look-up over microfilm. Sebastian said the time savings means that although the bank has laid off research employees, some who have left haven't been replaced.

Another benefit of the system is its ability to produce sharp images. Most customers who request canceled checks now get images printed 18 to a page — not the physical checks. That slashes postage costs by more than half, Sebastian said.

"Image quality on tape is much better," Sebastian said. "Microfilm often left a lot to your imagination."

A new tape format announced earlier this year by IBM, Hewlett-Packard Co. and Seagate Technology Inc. in Scotts Valley, Calif., is one potential challenge to Magstar MP. Called Accelis, it will be designed to offer a large 25G-byte capacity but will match Magstar MP's ability to load at tape midpoint, which enables faster searches. Accelis products are due by the middle of next year.

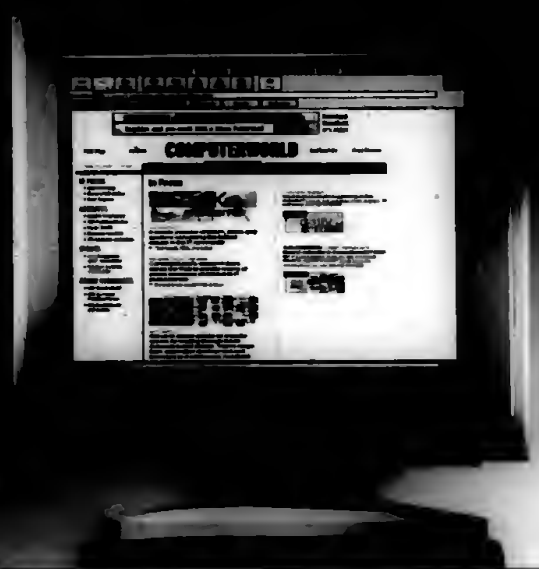
BIGGER, BETTER

Next-generation tape products from companies such as Quantum Corp. in Milpitas, Calif., and Exabyte Corp. in Boulder, Colo., will fall into the category of products developed under what Newton described as the "bigger is better" philosophy.

"We'd like to get [Exabyte's] Mammoth a drives as soon as possible to help with our backup window," said Daron Roberts, LAN administrator at Blue Cross/Blue Shield of Colorado in Denver. "But I doubt we will use them for [near-online] storage."

Roberts said the move to tape is "coming down the pike. But it's not going to happen anytime soon." Mammoth a drives, due by the middle of next year, will use 60G-byte tapes. □

online product info



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NEW PRODUCTS

TOSHIBA AMERICA INFORMATION SYSTEMS INC. has announced the Magnia 700n, a server for applications such as databases, data warehousing or electronic commerce.

According to the Irvine, Calif., company, the server supports up to four 400-MHz Pentium II Xeon processors from Intel Corp.

The system's standard configuration includes 256M bytes of dynamic RAM and six hot-swappable, 3.5-in. disk drive bays. Remote management software and support for either Windows NT or Novell Inc.'s NetWare are included.

Pricing starts at $7,945.

Toshiba America Information Systems
(714) 583-3000
www.toshiba.com

QUANTEX MICROSYSTEMS INC. has announced the Quantex VX-Series, a slim-design desktop PC.

According to the Somerset, N.J., company, the system supports a range of Intel Corp. processors, including the Intel Celeron and the Pentium II.

It includes accelerated graphics port graphics, up to 256M bytes of synchronous dynamic RAM and a 10/100M bit/sec. Fast Ethernet network interface card.

A base system comes with a standard 15-in. monitor, but flat-panel displays are available. Pricing starts at $999.

Quantex Microsystems
(732) 563-4166
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Because it's what you don't know that can hurt you, we offer Sniffer Total Network Visibility (TNV). Sniffer—the name synonymous with network uptime—keeps your network humming at full capacity.

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If you're on call when routers or switches fail and the network degrades, your best ally is Sniffer. With real time expert decodes for over 300 protocols, only Sniffer gives you the knowledge to re-route network traffic around bottlenecks and keep your network running full out.

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Sniffer Total Network Visibility

Magic Total Service Desk

PGP Total Network Security

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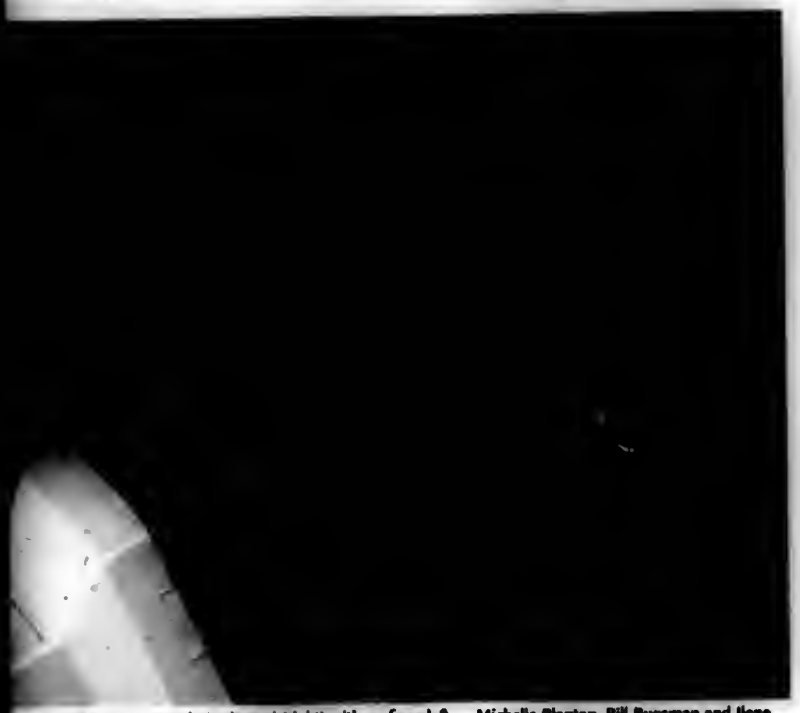
network ASSOCIATES

Who's watching your network

Managing

WALKING

BY KATHLEEN MELYMUKA



IT manager Lynda Lockwood (right) with — from left — Michelle Blanton, Bill Bussman and Ilene Gore at a Home Depot store in Atlanta

IT pros can learn valuable lessons by working the other side of the fence — if it's done right

Smart companies have found that a couple of days of walking the business walk is worth years of talking the business talk. But if you do it wrong, it's worse than a waste of time.

Many companies make a point of putting information technology professionals to work on store floors, in route trucks and in purchasing offices — the front lines where the business lives or dies. Walking the walk helps IT folks learn the business and how their work affects it. They empathize with business customers and look for opportunities to improve work processes. They build closer relationships and feel a part of something bigger than their current project.

That is, if they do it right.

AutoZone Inc. has been putting IT pros to work in the business since its founding 19 years ago. And during that time, the IT professionals have learned what works — and what doesn't.

The Memphis-based retail auto parts company used to send its managers to work in stores for one weekend four times per year, gathering information about how things were going and where improvements could be made.

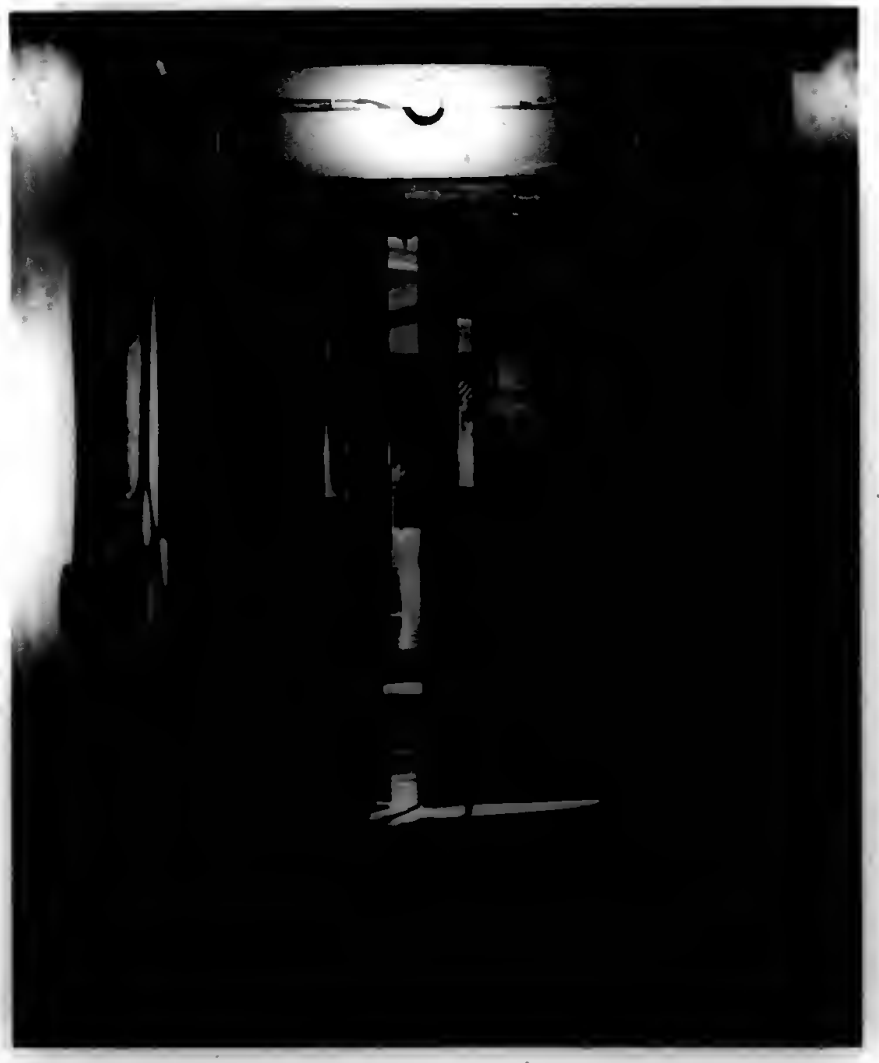
But in practice, it didn't work that way. "Weekends are our busy time. There were cases where [IT] people may have gotten in the way," says Jon Bascom, vice president of systems, technology and support. "When you've got a long line of people at the parts counter, the customer doesn't want to hear 'Um, I'll have to go get somebody who knows about that.' "

The store visits were too formal to get good feedback on system successes and shortcomings. "It always seemed like we got the canned response," Bascom says. "Because we were traveling with directors and VPs and the CEO, we never heard anything bad."

But AutoZone didn't give up on store visits; it just

COMPUTERWORLD

e-business



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HOW TO KEEP A SECRET.

In transforming your business into an e-business, the single most important issue you have to wrestle with is the issue of security.

Without flexible control over who sees what information, all the benefits of putting your key business processes online (which is, after all, the definition of an e-business) are a moot point. And when you connect your critical systems to the Web to help you improve customer service or increase the efficiency of your organization – security is a white-knuckle issue for the people charged with keeping your systems running and your data protected.

It's not just a matter of whom you let in and whom you keep out (although that is obviously important). When you're using the Web (or an intranet) to do things like let your employees change the asset allocation of their 401(k) accounts or let your customers see what their credit balance is, you need the ability to determine who sees what and who can make changes to what they see.

IBM e-business solutions can help you manage access to the really important information you make available online. We've spent over three decades protecting the integrity of corporate information systems. We've pioneered things like Realtime Intrusion Detection, Anti Virus Labs, and Emergency Response Services. And we've made security an integral part of IBM e-business technology – so you can build Web sites that know how to keep a secret.

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Two sides to the currency crisis in Asia

WHILE IT SPENOING IS SQUEEZEO OR ELIMINATED, A SILVER LINING EXISTS FOR IT OUTSOURCERS

Well into the second year of Asia's economic crisis, information technology budgets in that area of the world face a day of reckoning. Managers are asking a difficult question: Are information systems indispensable tools or cuttable cost centers?

Many Asian businesses are casting a critical eye on their IT capital expenditures — and in some cases deciding to cut them all together through outsourcing.

"The name of the game is to differentiate whether expenditure is essential or not," says James Tang, group MIS director at Hong Kong-based Astec (BSR) PLC, one of the world's leading suppliers of electronic power conversion products, with sales of $632 million last year.

In July last year, a sharp devaluation in the Thai baht sparked a domino effect that spread quickly throughout Southeast Asia and then headed north, infecting the region's hoped-fot savior, Japan. Only a select few Asian countries, such as China, Iodia and Taiwan, are likely to post economic growth this year.

With little respite in sight, Asian businesses are forced to refocus on their core competencies, and in many cases, IT isn't making the cut. Growing oumbers of regional airlines, banks and manufacturers are shedding their IT burden by signing multiyear outsourcing contracts.

"IT services is a phoenix rising from the ashes," says Craig Baty, principal analyst for IT services in the Asia-Pacific region at Gartner Group Inc.'s Dataquest unit in Sydney, Australia. "The crisis will probably prove to be one of the best things that ever happened to IT service providers in Asia."

Dataquest predicts that the market for professional IT services in the Asia-Pacific region outside Japan will reach $46.6 billioo by 2002, as compared with nearly $16 billion last year. That's a compound annual growth rate of 24%. But not everybody is jumping on the bandwagon. "Outsourcing doesn't make sense all the time," says Vincent Wong, IT manager for the Greater China and Korea region at Monsanto Far East Ltd., a manufacturer

view

TRENDS, ISSUES AND IDEAS FROM AROUND THE GLOBE

LARRY GOODE

of agricultural products, pharmaceuticals and food ingredients. "In Asia, it's not [always] appropriate, [because there are] not so many very capable outsourcing vendors."

However, it's becoming an attractive solution, particularly for some of the region's bartered airlines. Badly hurt by the downturn in inter-Asian travel, which prior to the crisis was their most lucrative business, regional airlines are scrambling to cut costs. "We are not experts in technology, but we are experts in providing a first-class airline service," says Y. H. Cho, president of Korean Air, in a September statement announcing that the Seoul-based airline had signed a 10-year outsourcing contract with IBM Global Services valued at more than $400 million.

Hong Kong's Cathay Pacific Airways Ltd. also is expanding its outsourcing ties with IBM. But officials were quick to point out that the deal wasn't a direct result of the Asian crisis. "The main driver is that we want to improve the level of service to our internal department," says David Ho, manager of IT infrastructure distribution at Cathay.

The outsourcing trend also is beginning to make inroads in financial institutions and manufacturing. In Japan, both Daiwa Bank and soap maker Kao Corp. have outsourced IT services to IBM Global Services.

"It's literally across the board," says Alfred Amoroso, the Tokyo-based general manager of global services at IBM Asia-Pacific Service Corp. "Staying competitive at an affordable cost is a major challenge companies here have."

As regional governments, including Australia, Singapore and Taiwan, get ready to outsource most of their IT operations, analysts expect the trend to escalate. "Once government commits to outsourcing, then the private sector follows," Baty says.

NOT A PRETTY PICTURE

With thousands of businesses suddenly bankrupt and millions out of work, it is hardly surprising that spending has declined for nearly all IT product segments.

Total IT spending this year in the Asia-Pacific region (outside Japan) is expected to contract 14.3% from last year to $41.2 billion, according to International Data Corp. (IDC), a market researcher in the U.S. and sister company to *Computerworld*.

In this year's second quarter, the negative trend finally caught up with the networking market. LAN market revenue in the Asia-Pacific region (outside Japan) posted a 12.6% year-on-year decline, down from $561.6 million in the same period last year, according to IDC. The spending

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EDITOR'S NOTE

Avoiding a Brain Drain

It's not a risk you'd choose to [illegible] the globe. It's not a problem that can [illegible]. But increasingly companies around the world are beginning to face up to what's becoming an alarming issue: [illegible] enough skilled people to build and run the [illegible] keep their businesses competitive.

Not everyone is experiencing a skills shortage. [illegible] countries, whole businesses are being formed [illegible] report that there's even a glut of programmers. And even [illegible] the extent of the shortage is hotly contested. [illegible] programmers feel pushed out of jobs by imported workers. [illegible] agree, however, is that companies need to [illegible] training their own people and in working with [illegible] to ensure the next generation of IT employees [illegible] knowledge to build competitive systems. The alternative is [illegible]. Country after country around the world report skyrocketing [illegible] and high turnover as IT workers become a scarce commodity. Market research houses such as International Data Corp. in the U.S. warn that entire regions could lose their competitive edge if they don't develop their skills base. [illegible] a few forward-thinking companies and governments have started to do just that.

In many areas of the world, there's a long road ahead. [illegible] institutions need to be restructured. But as we hit [illegible] milestones such as the year 2000 and the euro conversion, it will be more clear that now is the time to [illegible] and staffs for the future.

MARY BRANDEL
mary_brandel@cw.com

world

Two sides to the currency crisis in Asia

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THE SKILLS STRUGGLE
It's time to restock the global IT labor pool through training and education.

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A look at the skills shortage in Europe, Asia, the U.S. and Latin America

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drop would have been more significant had it not been for some of the region's more far-sighted governments, which continue to invest in their network infrastructures, says Sandra Ng, manager of networking products research at IDC Asia-Pacific.

Even government spending, however, has slowed. Malaysia has delayed parts of its much-ballyhooed Multimedia Super Corridor project, and Singapore has also quietly scaled back its aggressive IT infrastructure plans by lengthening the implementation time for some network projects, Ng says. "The value stays the same, but they stretch the time from three to nine months," she says.

When it comes to prioritizing IT projects, the year 2000 problem is one of the most time-critical issues companies in Asia must grapple with.

Analysts say Asia is behind the developed world in year 2000 readiness, and although funding has started to increase, more needs to be done. "We expect a much larger proportion of corporate IT funding in Asia to be dedicated to Y2K in 1999 — a move that will further delay purchases of hardware products in particular," Philbin says.

Asian governments, meanwhile, are using a mix of carrot-and-stick incentives to ensure that firms adequately deal with year 2000. In Taiwan, for example, the government has added year 2000-compliancy spending to the list of tax-deductible expenses.

China has set a March 1999 deadline for readying the country's 10 million systems for the year 2000 with final testing to be completed by September 1999, says Zhang Qi, director general of the department of electronics and IT products at China's Ministry of Information Industry.

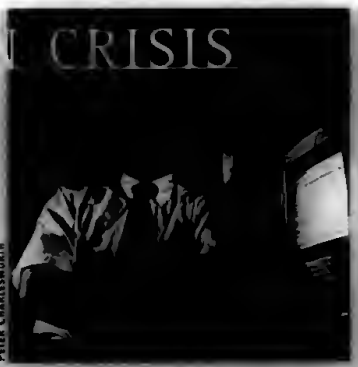
Admitting that China lags behind the developed world by nine to 12 months in year 2000 readiness, Zhang nevertheless expressed confidence that the goals will be met. The government is also training 5,000 engineers to help organizations complete their year 2000 projects, she adds.

Faced with the grim reality of shrinking markets and budget cuts, Asian IT industry officials remain cautiously optimistic, hoping for a light at the end of the tunnel.

In a speech at the opening of the Comdex Asia trade show in September, Singapore Federation of Computer Industries Chairman William Lu tried to cheer up a crowd of regional IT vendor representatives. "While we cannot say we have reached the bottom of the cycle, it is certain that companies [that survive] will come out of this fitter and wiser than before," he says. □

Uimonen writes for the IDG News Service in Taipei.

INTERNET STAYS HOT AMID ASIAN CRISIS



PETER CHARLESWORTH

By Terho Uimonen

If there's one technology surviving Asian budget cuts, it's the Internet.

By 2000, Web spending will account for 20% of the average corporate information technology budget, according to Dennis Philbin, vice president and managing director at IDC's Asia-Pacific unit.

In that same time frame, the number of Internet users in the Asia-Pacific region outside Japan will grow from more than 8 million to more than 34 million, according to IDC.

Even in Indonesia — Ground Zero in the crisis-stricken region of Southeast Asia — the Web is offering at least some relief for one Web-savvy company.

As the country's sole agent for Toyota cars since 1969, PT Astra International Tbk. saw many of its car showrooms literally burn down during the street riots that led to the ouster of President Suharto earlier this year.

Hit hard by the rapid decline of the Indonesian rupiah, PT Astra viewed a Web-based application as the next-best option for showcasing Toyota in Indonesia. "In this situation, Web kiosks are a more suitable media than having a car showroom," says Edy Soesanto Prawirohardjo, senior manager of corporate IT at PT Astra.

The result was an in-house-developed application for the Auto 2000 Information Kiosks that PT Astra plans to use as promotion and sales tools.

The application aims to give prospective buyers an interactive multimedia presentation of the available Toyota models.

With a front end based on Computer Associates International Inc.'s Jasmine object database, the application is tightly integrated with the company's SAP AG R/3 environment, which among other mission-critical tasks, manages PT Astra's inventory management system.

The tie-in with the ERP software allows staff to check on stock availability, as well as financial information.

However, PT Astra — a vast conglomerate with 90,000 employees — may not be representative of most Indonesian businesses, Philbin notes.

"Even by world standards, PT Astra is very advanced when it comes to Internet and intranet applications," Philbin says.

Continued from page 5

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Oh, what a tangled web

Latin America IS BOOMING WITH IT SKILLS AND A READINESS TO APPLY TECHNOLOGY TO BUSINESS. BUT LONG-EXISTING PROBLEMS IN SOME REGIONS CAN MIRE IT PROJECTS

BY JEFFERY ZBAR

When Andre Vanyi-Robin launched Benevisual, a Caracas, Venezuela, division of his Miami-based Web site creation company, he couldn't have known that something as basic as the phone system would ultimately price him out of business.

In January 1996, Vanyi-Robin was paying $60 per month for an Internet connection for his 15 employees — slightly more than the cost of his Miami office connection. But he was also doling out 30 cents per minute to the telephone company every time he logged on. The total: more than $1,500 per month.

"The per-minute calls were more expensive in some cases than the long-distance phone calls," he says. What's worse, local laws forbid using voice lines for dedicated data service, and a 256K bit/sec. frame-relay network would have run $3,000 per month, which priced his company right out of the market.

And Vanyi-Robin isn't alone. In Latin America, more than 70% of businesses are forced to pay high phone rates because they use dial-up connections — all as a way to avoid the even larger cost of a dedicated network.

Thwarted, Vanyi-Robin in January folded his Caracas operation into the Miami offices of Visualcom Inc., his Web site development company targeting Latin American divisions of Fortune 500 companies.

Corporations looking to expand into Latin America often experience both a blessing and a curse. The region's information technology market is blossoming with skilled talent, plentiful equipment and a growing awareness of IT's importance in emerging economies. But long-existing problems, such as an aging telecommunications infrastructure run by inflexible government or private monopolies; high per-minute phone charges, even for local calls; and corruption in utilities and the government, continue to dog the region.

Differences vary so widely among countries that a company's strategy needs to be country-specific, says Kenneth Richard, president of Latinrep Associates Inc., an Oakland, Calif., sales and marketing outsourcing firm that targets the Latin American IT industry.

Chile, whose government helps guide IT development, has an entirely digital phone system, making quality connections easy and inexpensive, Richard says. Other governments, such as those in Argentina, Uruguay and Peru, are less involved in guiding business and industry.

With more than $1 billion invested in the Argentine phone system in recent years, connections are effective and timely, with setups taking just days or weeks. Also in that country, recent advances have been made in Internet affordability. Until recently, high per-minute costs have rendered Internet use off-limits to all but the upper class. But the local telephone duopoly has agreed to halve the cost of calls made to Internet service providers, according to Fernando Espuelas, CEO of StarMedia Network, a Spanish-language Internet content provider for Latin America.

In Mexico and Brazil, on the other hand, business and industry are emerging from years of protectionist policies that guaranteed jobs at good wages.

Thus, corruption exists, and civil servants are apt to "intervene to productive sectors' daily lives," Richard says. Brazil is "by far the most complicated, frustrating and difficult" place to do business as its industries adapt to privatization, Richard says.

For example, it can take months to get a high-speed data line in Brazil — if you contact the right people. "Your biggest issue will not be if you can get a good solid T1 line," Richard says. "You can, but it may take you a year unless you're willing to pay many thousands of dollars to fix it."

From an IT view, the region is well-served by a fast-learning employee base, Richard says. Low labor costs diminish the cost of installation and

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WIRED WORLD

NOTES FROM AROUND THE GLOBE

■By 2002, there will be more "world" in the World Wide Web, according to U.S.-based consultancy Gartner Group Inc. In Japan, Internet access devices will increase from 10.8 million this year to 33.4 million in 2002. In Europe, they will grow from 21 million this year to 68.6 million in five years. But the real explosion will occur in the Asia-Pacific region, where [illegible] million devices this year will grow to 45.5 million in 2002.

■In Japan, 81% of companies are working on the millennium problem, according to the Tokyo Stock Exchange. A total of 9% are finished, and [illegible] said they had done nothing [illegible] saw no need to act.

■In the overall Asia-Pacific region, the currency crisis has slashed spending into next year, at which time 5.2% of IT spending will be devoted to the year 2000 issue, according to International Data Corp., a U.S.-based market researcher and a sister company to Computerworld.

■And in Russia, China, India, Argentina and Venezuela, two-thirds of the companies are expected to have a mission-critical system failure, according to Gartner Group. This summer, the group found that [illegible] companies worldwide [illegible] start dealing with the issue. Last year, the percentage was 50%. (As reported by Computerworld.)

■The Internet market in Latin America will soon be ripe for the picking, according to experts there. Growing competition in telecommunications markets, a rising middle class, favorable demographics and the availability of cheap PCs make it a region not to be taken lightly, they say. About 10 million of the region's approximately 500 million inhabitants surf the Internet today, up from 1 million two years ago, according to advertising agency Saatchi & Saatchi. By 2000, that figure is expected to more than triple. (As reported by IDG News Service, a sister company to Computerworld.)

■European executives may voice enthusiasm for electronic business, but they're sideline players when it comes to the actual game, according to a study of European senior executives by Andersen Consulting. Though 82% believe electronic commerce will impact their businesses, only 39% are taking steps to incorporate it into their operations and strategies. Only 19% see it as a serious competitive threat. Reasons cited: a lack of consumer understanding, privacy, security and the lack of a framework for commercial regulation, and the need for governments to work together for a common framework.

Oh, what a tangled web

Continued from page [illegible]

cabling, and the quality of technical support is higher than in the U.S. That's because until the past few years, the region was "ignored and abandoned" by both U.S. and Japanese manufacturers, he says, although many multinational hardware manufacturers provide in-country service and support today. Thus, entrepreneurs have learned systems themselves — and provide the service to locals.

"These guys have had to figure it out on their own," Richard says. "As a result, the level of sophistication in tech support often is higher."

Where sophistication lags is within some of the local companies themselves. Few have upgraded their systems to compete on a global level because of past laws protecting them from outside competition, says Amilcar Marques, an analyst at Gartner Group Inc. in Curitiba, Brazil.

> **Realize the differences among countries and expect delays.**

Such laws are outdated today, but local companies still lag behind the global standard by upward of five years, Marques says, and about 80% of companies "use the old method of paper and a lot of memorandums."

Even connect speeds with local companies may be unrealistically slow. Large companies tend to take it upon themselves to help automate priority suppliers.

For some, the attitude is, "This is painful. It takes time and money. So why do it if you don't need it?" Marques says. "This is common, especially in the government."

As MIS director at Foote Cone & Belding Advertising in Latin America, Jaime Graterol has experienced the highs and lows of the region's IT capabilities.

In the largest of 27 regional offices, such as those in Brazil, Argentina, Mexico, Puerto Rico and Venezuela, the company uses fractional T1 lines.

Smaller offices pay the per-use dial-up fee. Though the cost is high, the options are few to keep the 550 terminals linked regionwide. "It kind of balances out," Graterol says.

He acknowledges that some countries hum better than others. But from an IT perspective, Latin America has evolved into a sound market, he says.

The learning curve has grown short, and skilled IT workers have become bountiful — more so than when Graterol joined the agency in 1983.

To newcomers, Graterol offers this advice: Realize the subtle differences among countries, expect delays in getting permits or hooking up telephony lines in some of the larger markets, and make friends among civil servants.

"Many of us, being from the region, know the problems you can have," the native Venezuelan says.

"To set up a shop, you need a lot of permits, and it's going to help you if you have contacts," he says. "What can I tell you? That's the reality." □

Zbar is a freelance writer in Coral Springs, Fla.

Oh, what a tangled web

Continued from page 7

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PERSPECTIVE

GLOBAL ROLLOUTS:

A sticky business

BY EDWARD M. ROCHE

A company was asked by its major customer, "How much did we buy from you last year worldwide? Can we get the same terms everywhere and have a single point of contact?"

The CIO was embarrassed that it took more than two and a half weeks just to get consolidated data on global sales to the customer. Why did it take that long? Because the enterprise was organized in a "multidomestic" infrastructure, with functional areas of the business duplicated in each country.

For many companies, rolling out enterprise systems is the answer to building that type of global capability.

Enterprise systems such as those from SAP AG, J. D. Edwards & Co., Baan Co. and Oracle Corp. help today's multinationals deploy complex strategies, leveraging better communications, faster processes, shorter product life cycles and global customer support through an infrastructure that's efficient but also adaptable to local needs.

But rolling out those systems can be problematic. Political control is complicated by torn loyalties among corporate information technology departments and overseas staff. Managers enjoy seemingly cooperative meetings in subsidiaries, but no action is taken once they get back to headquarters.

Ownership structures such as joint ventures give more autonomy to local data processing establishments, inhibiting cooperation in building systems. Even the scarcity of resources in different countries conspires against global consistency.

Other factors, however, tend to accelerate enterprise rollouts. Positive developments in telecommunications, distributed hardware and operating systems, and collaborative virtual team techniques aid the rollout work.

Nevertheless, we have noticed a disturbing trend. Rolling out enterprise

systems is complicated by confusion over the nature of the integration taking place. There are at least three types of integration.

Weberian integration is the classic headquarters-to-subsidiary model and is associated with a traditional view of IT. The hierarchical architecture reigns, with a mainframe at corporate headquarters supported by regional midsize platforms and minicomputers at subsidiaries.

Collaborative integration focuses on applications intended to support virtual teams. E-mail systems, Lotus Notes installations, intranets and the like are used to link professionals in a transnational network flexible enough to tackle global strategic issues and sudden business challenges.

Collaborative integration is based on a highly distributed architecture, with no single point of failure and many potential areas of success.

Scale integration takes advantage of the radical efficiencies to be gained in cost per transaction.

It entails dramatically reducing the number of a company's data centers and cutting IT expenses while improving service.

The technologies involved rest upon the rapidly growing capacities of transaction processing systems. Networks provide access to those large data centers from all parts of the globe.

In most cases, the IT team must orient itself toward all three approaches rather than arguing about which is best.

It can do that by defining the strategic goal of the enterprise effort and blending all three integration methods. Multinationals should focus on creating a global applications superstructure that serves as a cogent development platform on which to enable the functional integration needed to compete in the 21st century. □

Roche is vice president and research director at The Concours Group. He can be reached at EMRoche@ConcoursGroup.com.

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cover story

The Skills Strug

It's time to restock the global IT labor pool through training and education

The information technology industry faces a common problem of global proportions: Plenty of work to do and not enough people to do it.

CIOs and IT executives around the world say if the acute skills and labor shortages aren't addressed, national IT sectors will lose their competitive edge, economies will suffer and innovation will slow.

The problem appears to be most threatening in Europe and Asia, where the scarcity of IT workers could stifle hopes for long-term economic growth. In Germany and the U.K., there's a 25% gap between jobs created and jobs filled. That's quite a disparity, considering that the countries together account for half of Europe's total IT production, according to the German Information Technology Association.

Most of Latin America faces a similar threat. The region's burgeoning high-technology market can't enjoy continued growth if skilled workers continue to be lured elsewhere.

Meanwhile, in the U.S., a debate rages as to whether corporations should be allowed to import talent at such a furious rate. Many high-tech companies say they can't fill their ranks without looking outside the U.S., while others say there are plenty of domestic workers. Either way, U.S. hiring continues at an aggressive pace: In *Computerworld*'s Annual Hiring Survey, half the 270 IT managers who participated say they hoped to grow their staff by more than 10% next year. One-third of the job requisitions opened last year were never filled, the hiring managers report.

As a result, salaries around the world are skyrocketing, turnover is high and innovative projects are being placed on the back burner in favor of more pressing concerns, such as year 2000 issues and the euro conversion. Dataquest in San Jose, Calif., expects top-end programmers to see their salaries rise by about 12% in Europe. According to *Computerworld*'s Annual Salary Survey, the average IT salary increase in the U.S. is 9% — more than twice the national average for other professions.

START-UP BUSINESSES

Other countries, such as Russia, Brazil and the Philippines, face quite a different staffing picture. With an abundance of skilled programmers, those countries are seeing businesses crop up to take advantage of the situation. Last May, the Bulgarian government set up Rila Software Corp., which will offer the services of 7,000 software professionals to Europe and North America.

Along the same lines, the U.S. subsidiary of Lavori International, a Brazilian job placement and recruiting company, is considering opening an office in the U.S. "We estimate that in Brazil, there are about 5,000 IT job openings for the 12,000 students who graduate every year," says Luis Henrique Kubota, former vice president at Lavori.

And in Russia, a software development company called Arcadia Inc. has extended its business to include a training, exchange and placement program. The idea is to bring in additional software contracts, make better use of St. Petersburg talent, train and place Russian programmers for work abroad and give programmers who want to stay in Russia a crack at some international training.

However, some observers fear an eventual brain drain as IT talent departs for foreign lands. Last year, the Philippine Overseas Employment Administration saw the largest departure of IT professionals — 902 individuals — bound for destinations such as the U.S., Saudi Arabia and Singapore.

In fact, cross-border skills-borrowing is becoming common. German software firm SAP AG, for example, is taking the jobs across borders, setting up research and development centers in India and Russia.

But clearly, that isn't the solution. Rather than fishing from the existing (albeit global) pond, companies need to refresh the labor pool itself. Critics say the global IT industry has failed to invest in employee retraining programs, emphasize the need for basic education or attract students to the fields of math and science at an early age.

In Pakistan, for instance, local colleges and universities are turning out only 600 IT graduates per year. Then there's the added problem of

There are exceptions. According to Dataquest, universities in Latin America do an excellent job of satisfying the demand for qualified IT professionals. In the U.S., university enrollment in computer science programs increased by 40% in 1996-97 and by another 39% in the 1997-98 academic year. Companies such as NCR Corp. and Metamor Technologies Inc. are getting involved at the community level to increase educational efforts (see related stories, pages 16 and 17).

In the long term, the message couldn't be more clear: Companies around the world need to focus on training and on working with educarors and their governments to raise the level of IT education.

"It's only getting worse," says Simon Lin, president and CEO of Taiwan-based Acer Inc.'s information products group. Taiwan's $30 billion computer hardware industry has had difficulties filling its technical positions for several years.

"That's why we are trying to push the government to invest more in education and training," Lin says, echoing the sentiments of many of his peers around the world.

"We have to restructure our institutions of higher education from the ground up," agrees Bernd Rohleder, press spokesman for a German IT trade association. Rohleder partly faults the German educational system for the shortfall in IT staff.

Whether through training or basic education, creativity will be key. For instance, in Holland, Dutch Prime Minister Wim Kok and Secretary of State Jacob Kohnstamm late last year unveiled a plan to get retired programmers back in business.

Meanwhile, Singapore's government has made tackling the country's IT skills shortage a priority. With IT staff requirements rising 11% per year in that country, matching labor skills with market requirements is proving difficult, according to Thomas Yeoh, Singapore's director of Industry and Manpower Development for the government's National Computer Board (NCB).

"To make sure that critical skills are developed to meet the industry's manpower demand, the NCB will continue ro expand the Critical IT Resource Program to include training in key and emerging IT skills," Yeoh says.

In the U.S., companies should consider spending 5% to 7% of their IT budget, or $7,000 to $10,000 per person, on training and education, according to David Foote, managing partner of Cromwell Foote Partners LLC, an advisory firm in Stamford, Conn.

"There is an issue that the industry expects people to be ready [in terms of relevant skills]," says Vin Sumner, business development director ar Sema Group in the U.K.

But "there is not enough fresh blood. Industry needs to be smarter at training people," Sumner says. □

trying to retain those graduates and dissuade them from going overseas to the U.S. and Canada in search of higher salaries and a better standard of living.

Busse is San Francisco bureau chief at the IDG News Service. Brandel is editor of the Global Innovators Series. This and related stories were reported by the IDG News Service staff around the world with Nancy Weil and Rebecca Sykes in Boston, Marc Ferranti in New York, Margret Johnston in Washington, Torsten Busse in San Francisco, Jeanette Borzo and Joy Dietrich in Paris, Kristi Essick in London, Elizabeth deBony in Brussels, Mary Lisbeth D'Amico in Munich, Philip Willan in Rome, Rob Guth in Tokyo, Terho Uimonen in Taipei, Taiwan, David Legard in Singapore and Clare Haney in Hong Kong. With contributions from Eric Verweij, news editor at InfoWorld Netherlands, *and from* Computerworld Pakistan, Computerworld Philippines *and* Network World Today *(Australia). Material from the IDG News Service archive also was used for this report.*

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EUROPEAN

The West comes up short, despite abundance to the East

BY JEANETTE BORZO, KRISTI ESSICK AND MARY LISBETH D'AMICO

The European IT labor market — like much else in Europe — is very different from east to west. While Western Europe faces a severe shortage that threatens its ability to compete on a global scale, the market to the east houses an abundance of highly trained IT workers.

"There is a general lack of specialist programmers which is likely to get much more severe over the course of the next year," says Federico Barilli, director general of Italy's Milan-based National Association of Producers of Technology and Services for Information and Communication.

Consider that in Western Europe, a startling 510,000 information technology jobs will remain vacant at the end of this year, according to a study conducted by International Data Corp. (IDC) and sponsored by Microsoft Corp. That's nothing compared with 2002, when vacancies will total 1.6 million, according to IDC, a sister company to *Computerworld*. And the Business Software Alliance predicts that the packaged software industry in Western Europe is expected to create more than 92,000 jobs in the next four years.

The U.K., the Nordic countries and the Netherlands show particularly high demand for IT professionals, according to Jonathan Furlonger, a senior research analyst at Gartner Group UK Ltd.

Meanwhile, in Central and Eastern Europe, "there has been an excess of programmers for the last decade," says Robert Farish, IDC's research manager for Russia, in Moscow. The large, highly skilled labor force hails from the former military engineering, project and research organizations, says Michael Novikov, marketing manager for Arcadia Inc. in St. Petersburg, Russia. "And they currently suffer from budget cuts and low salaries," he says.

Even Hungary, which has a higher demand for programmers, has an ample supply of IT workers, says Nadia Griffiths, a research analyst at Dataquest Europe's Central and Eastern European Telecommunications group.

Lacking pan-European statistics, it's best to look at two countries to understand the degree of the shortage.

"The IT sector in Germany creates annually roughly 200,000 new jobs, but there are still 50,000 vacancies for skilled IT workers," says a spokesman for the German Information Technology Association (GITA). The 25% gap is also applicable to the U.K. That's quite a gap, given that Germany and the U.K. account for 50% of total IT production in the European Union and about half of Western Europe's IT employment, according to GITA.

Adding to Western Europe's labor shortage are year 2000 projects and conversions to the common European Union currency, the euro. Other factors include telecommunication deregulation and booming economies, such as in the U.K.

TRAINING NEEDED

A lack of university graduates and little corporate in-house training also have aggravated the programmer shortage. Lack of training is the worst offense, according to 33% of the large U.K. companies that said there is an IT shortage in a study conducted by the Computing Services and Software Association in the U.K.

At the university level, "we do not produce enough IT workers each year," says Rakesh Nagpaul, managing director at Compuware U.K., the British-based branch of Compuware Corp., a software and services company. "The problem is very fundamental, and we have to go back to the school level to correct it," he says.

If firms don't increase their training efforts, the number of skilled IT workers will rise only 6% per year through 2002, according to IDC – not enough to fill all the open posts.

If more emphasis isn't placed on training, the entire Western European economy could be at risk, IDC says. □

ASIAN

Despite rampant unemployment, lack of IT skills threatens Asian growth

BY ROB GUTH, CLARE HANEY, DAVID LEGARD AND TERHO UIMONEN

Asia's economic problems may be putting growing numbers of people out of work, but IT-capable workers are still in short supply. In fact, the skills shortage remains one of the greatest bottlenecks to building a broad Asian base of new technology development, according to observers.

The acute shortage of skilled year 2000 staff may further aggravate the situation. Asian businesses will be forced to dedicate even more of their information technology budgets to solve the problem.

"Asian companies are having a particularly difficult time now since the high-tech industry in the West . . . has picked up tremendously," says Andy Chun, managing director of Iona Technologies China Ltd. in Kowloon, Hong Kong. "The current economy in Asia is not helping attract people back from overseas, either."

Some computer vendors are successfully transplanting workers from other countries. But this strategy can backfire. "They stay six months, get qualifications and then disappear at a huge rate for the U.S.," says one Singapore IT executive.

In Taiwan, "there simply are not enough software engineers," says Jason Lin, country manager at market researcher The New Century Group. For historical reasons, most of the island's skilled programmers work in government-related organizations, leaving the private sector in limbo.

In Australia, a critical skills shortage is worsening. "There is already a shortfall in Australia of between 20,000 and 25,000 skilled staff," says John Silk, managing director of the Australian subsidiary of Mastech Corp. "If you don't look after your staff financially, be prepared to lose them to those who will."

Another approach is being adopted by the Malaysian government, with its vision to build a Multimedia Super Corridor (MSC) as a seedbed for growing a local IT industry with global significance. The government is wooing IT firms worldwide to set up shop and bring workers to the MSC. But many observers say Malaysia will have difficulty fueling its ambitions.

"About 25,000 knowledge workers will be required over the next five years by the 124 companies that have received MSC status," says Malaysia Education Minister Najib Tun Razak.

The currency crisis has been less severe in Hong Kong, but the Special Administrative Region there also suffers from a shortage.

The problem is that Hong Kong lacks a strong base of local software companies to attract talent, accordiog to Richard Tseng, director of software engineering start-up Auco Asia Ltd. in Chai Wan, Hong Kong.

"Much of the software is systems integration work, not engineering work," he says. "There are oot the development companies here to create the necessary skill sets." Tseng decided to recruit computer science and electrical engineering graduates straight out of college and train them in the necessary skills.

Many companies are turning to educatioo as a cure. However, "it normally takes 10 to 15 years to develop the necessary skills needed by the oew and emerging IT and roultimedia industries," Razak says.

If the Malaysian minister's comments are oo the money, Asian countries touting themselves as IT industry launchpads might well find their ambitions thwarted by the lack of skilled local labor.

That is, unless they and their governments act quickly, with significant investments in both educatioo and retraining for IT positions. □

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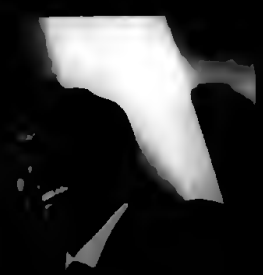
If more emphasis isn't placed on training, the entire Western European economy could be at risk, IDC says.

DIAMONDS IN THE ROUGH ARE KEY AT COMPUWARE U.K.

There's no such thing as a skills shortage at Compuware U.K., says Rakesh Nagpaul, managing director. Rather than seeking polished IT professionals, Compuware looks for recruits with potential — and then invests in training.

The company admits it pays less than its competitors IBM Global Services and Electronic Data Systems Inc. Instead, it's the training and flexible work environment that keep turnover low, Nagpaul says.



Mary Madeiros

For instance, one graduate was hired to write technical documentation but then asked to receive Oracle database training.

Others have moved from finance to the networking division. "What people are most worried about is where their job is going," Nagpaul says. "They want variety to keep them interested."

Despite rampant unemployment, lack of IT skills threatens Asian growth

BY ROB GUTH, CLARI HANLY, DAVID LEGARD AND ILKKA UIMONEN

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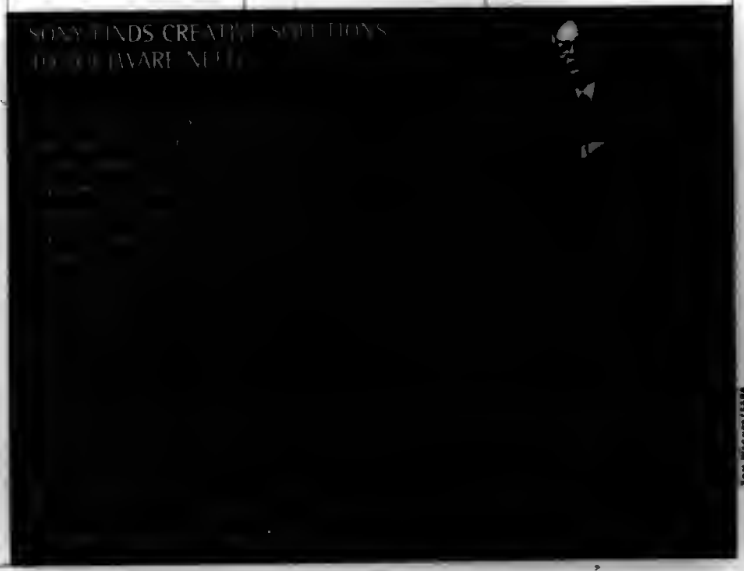
The problem is that Hong Kong lacks a strong base of local software companies to attract talent, according to Richard Tseng, director of software engineering start-up Auco Asia Ltd. in Chai Wan, Hong Kong.

"Much of the software is systems integration work, not engineering work," he says. "There are not the development companies here to create the necessary skill sets." Tseng decided to recruit computer science and electrical engineering graduates straight out of college and train them in the necessary skills.

Many companies are turning to education as a cure. However, "it normally takes 10 to 15 years to develop the necessary skills needed by the new and emerging IT and multimedia industries," Razak says.

If the Malaysian minister's comments are on the money, Asian countries touting themselves as IT industry launchpads might well find their ambitions thwarted by the lack of skilled local labor.

That is, unless they and their governments act quickly, with significant investments in both education and retraining for IT positions. □



Shortage or no shortage? Foreign workers throw the question into turmoil

BY TORSTEN BUSSE

Mention H-1B visas to Linda Kilcrease, a New Jersey-based programmer, and she sees red.

In 1994, Kilcrease and the 250-strong information systems department of insurance firm American International Group Inc. was fired and replaced with foreign workers brought in on H-1B visas by the outsourcing service Syntel Inc. The H-1B visa is a "specialty occupation" visa offered annually by the U.S. to 65,000 foreign workers.

"Before we left, they made us train our replacements at our own desks," says Kilcrease, who now actively lobbies against the H-1B program.

In the U.S., the debate over the information technology labor shortage has become a very divisive issue. Throughout the year, vendors such as Sun Microsystems Inc., Intel Corp., Microsoft Corp. and their lobbying organizations have battled unions, industry associations and the U.S. government as they sought an expansion of the H-1B program.

Proponents of H-1B visas argue that unless they're allowed to look across borders for engineers and programmers, the IT sector will lose its competitive edge. They would like to see the cap doubled or tied to some economic indicator such as the U.S. unemployment rate.

But critics blast the labor "crisis" as a myth created by a greedy industry that wants to hire cheaper foreign workers. Many programmers, for instance, fail to see the crisis after running into highly selective hiring practices.

The U.S. government, meanwhile, says the H-1B program is in need of reform. For instance, more than 80% of H-1B holders now earn salaries of less than $50,000 per year, according to John Fraser, deputy wage and hours administrator at the U.S. Department of Labor. If H-1B visas were really being issued to foreign nationals with unique skills, they would earn a lot more, he says.

A case in point is Syntel, which because of its contract with American International, was slapped with a hefty fine by the Department of Labor for paying its computer programmers from India wages 20% below the legal standard.

Other H-1B critics say the number of visas is rising 10 times faster than the growth rate in IT jobs. Still others point out the low hiring rates — about 2% of all software applicants — and moderate wage increases, which stood at 7% last year.

But IT vendors maintain their demands, arguing that if they're prevented from hiring additional H-1B workers after the cap is reached — which occurred in May — the U.S. high-tech industry will suffer.

Amid a raging debate, lawmakers responded to industry's calls for action. In mid-September, Congress and the Clinton administration agreed on a compromise bill that raises the number of H-1B visas to 115,000 next year.

In 2001, the number would drop to 107,500; it would return to 65,000 in 2002. The compromise bill would provide college scholarships for low-income students and job training for U.S. workers.

A final vote on the bill was unexpectedly blocked in October by Sen. Tom Harkin (D-Iowa), who said he felt there was no need for it. It was then passed as an amendment to the Omnibus Appropriations bill, which was approved by Congress and signed into law by President Clinton at the end of October.

Meanwhile, organized labor and university officials say the U.S. would be better off investing more in educational programs and initiatives. "We have a skills, not a labor shortage," says Paul Anderson, an official at the Communicatinns Workers of America in Washington. □

LATIN AMERICAN

In most regions, labor supply can't meet skyrocketing demand

BY JUAN CARLOS PEREZ

In the past three to five years, Latin America's IT market has seen enormous growth, causing a shortage of IT pros in parts of the region. In Venezuela, for instance, the demand for skilled IT professionals has skyrocketed in the past two and a half years, as more and more companies migrate to open systems environments, says Jorge Mora, IS manager at Seguros Pan-American, a large insurance company in Caracas.

"We tried to train our own employees, but that didn't yield the expected results," Mora says. "We've concluded that you have to go out and find the candidates with the profile you're looking for and pay them what they ask for."

Mora added that in general, recent college graduates who are now joining the workplace don't have the necessary skills.

"The people coming out of the universities don't have the skills we need," agrees Hermann Gumez, president of Cygnus, a large systems integrator in Caracas.

"So we invest a lot — about 20% of our total revenues — in training our personnel," he says.

Rising salaries are adding to the problem, thanks to the many large, foreign-owned companies opening subsidiaries in Venezuela. Pan-American and other local businesses are forced to increase the wages of IT staffers they want to retain, Mora says.

The situation in Argentina is less clear-cut. Some market researchers see the supply of programmers exceeding demand, but multinationals such as NCR Corp. say talent isn't easy to find and are taking steps to improve the skills base in the country (see related story at right).

Meanwhile, Brazil has more skilled people than the domestic IT industry can support, according to Luis Henrique Kubota, former vice president of Lavori International, the U.S. subsidiary of the Brazilian job placement and recruiting company.

"We estimate that in Brazil there are about 5,000 IT job openings for the 12,000 students who graduate every year," Kubota says.

Generally, midlevel Latin American IT workers tend to migrate toward the U.S. market, lured by the higher wages and better opportunities for career advancement, says Luis Anavitarte, senior analyst for Latin America at market research firm Dataquest.

On the other hand, he adds, "Universities and technical institutes in the region are doing an excellent job of satisfying the demand for qualified IT professionals."

A good example is the Instituto Tecnologico y de Estudios Superiores de Monterrey (Technological and Higher Learning Institute of Monterrey) in Mexico, he says.

"Although some will emigrate, depending on [their country's] internal situation, most will be important assets to their countries, since IT is at the center of the economic development process," Anavitarte says. □

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U.S.

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MICHAEL L. ABRAMSON

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NOT "JUST A JOB"

By Juan Carlos Perez

Like many multinationals with divisions in Latin America, NCR knows it can't sit around waiting for resumes. "All the companies in the high-tech market have a need for qualified people," says Hermes Luigi Cantini, NCR's human resources director for Brazil, Argentina and Chile, countries where the company employs about 500 workers.

So NCR stays in close contact with the top universities in those three countries, including helping to keep curriculums updated. NCR also offers internship programs, although Chilean law forbids students from working. Many of the interns become full-time NCR employees.

NCR also gives employees a chance to gain new skills, Cantini says. For instance, half the employees in Brazil are taking the free on-site English classes offered there. NCR is planning to implement that program in Chile and Argentina as well.

"Workers in Latin America don't just care about getting good money. They value that they can feel proud of the company they work for," Cantini says.

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e-business economics are compelling. According to a recent Booz-Allen & Hamilton study, a traditional bank transaction costs $1.07; the same transaction over the Web costs about 1¢. A traditional airline ticket costs $8 to process; an e-ticket costs just $1. Customers love the convenience; management loves the lower costs.

IBM solutions have already helped thousands of businesses become e-businesses. To find out how IBM can help you do the same, bookmark www.ibm.com/e-business or call us today at 1 800 IBM 7080, extension NC32.

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A PRACTICE WHOSE TIME IS GONE
It's time to throw "project management" overboard, Peter G. W. Keen writes. PAGE 64

with the USERS

fine-tuned them. Now small, mixed groups of IT employees do quarterly, three- to four-day "store blitzkriegs." They work multiple shifts in areas where they can have the most impact. "We don't want to have a [point-of-sale] programmer spend all his time putting merchandise on the shelves," Bascom says. "He'd gain more knowledge watching how his application serves the customer."

IT workers track feedback and observations and brief their bosses upon their return. "Then we act on those things," Bascom says. "We've made changes to our real-time satellite applications and to customer applications like [point-of-sale]. We've figured out where a transaction is taking 30 seconds, and if we changed the system we could do it in five seconds."

OTHER IT PROS WHO ARE WALKING THE WALK:

JOHN COLLINS
APPLICATION SPECIALIST
HOME SERVICES DIVISION
SEARS, ROEBUCK AND CO.

Home Services' 12,000 technicians make 15 million home visits per year to repair appliances. As part of the IT team that developed a laptop for field technicians, Collins has spent 10 to 15 days riding with the technicians since 1991.

The job:

Check assignments, bring out parts, verify appointments, make calls, talk to customers, verify problems, fix appliances, record parts and labor, report to customers, give receipts, offer maintenance agreements.

Lessons learned:

"A simple thing to me can be a very major headache in the field. Like needing to reboot the PC. To us, having to reboot is no big thing, but you see that for a tech who's talking to the customer and sees the screen lock up and has to reboot, that can be embarrassing and frustrating," Collins says.

"The radio [modem] communication worked fine here, but in the field we had some [miscommunication]. It turns out a truck can go out of range — like on a cell phone — and mess up data communications. We had to put in beefier checking to see that they were getting everything," he says.

The experience "gives you much more empathy for the end user and the customer," he says. "It humanizes the work, so we think of it not just as a program that we'll get around to fixing in a little while but as something that's keeping Mrs. Jones from having her dryer fixed so she can have her kids' clothes ready for soccer."

LYNDA LOCKWOOD
INFORMATION SYSTEMS MANAGER
FOR MERCHANDISING
THE HOME DEPOT INC.

IT newcomers to merchandising work with buyers who purchase merchandise for the chain's stores.

Lockwood has walked the walk, but as a manager, she's also concerned with getting it right for everyone. "It can interrupt workflow," she says, "but if you're smart, it can work.

"You need to partner with the people you're going to visit. Ask them when to come over, how to best structure the visit, how many people they can take at once, what are the better times.

"We also have to look at what level the IS person is at. If we send them over too soon, before they have any foundation of knowledge, they're not able to grasp what's being done, and they get very little out of it. They might even get bored. My feeling is, there's no rush."

The job:

Work with advertising, special-order, vendor-management and merchandising people who support stores.

Lessons learned:

"When you're on the support line [in IT], people call, and you know it's critical, but when you go out to the users, you see the pressure they're under," Lockwood says. "For example, you recognize how little things like improving cursor movement can make their life much better.

"Once, we found that they couldn't line up two fields of a report because they were too far apart on the page. They had to use a ruler. We found that moving one column closer to the other would save many, many hours per week when you multiplied it by the number of people who look at that report.

"You think you know what users need, and you think you're communicating, but sometimes you're not hearing what they're telling you.

"You need to sit with people and do their job to really understand it. Then you're better able to come back and design for them."

FRANK McDONOUGH
SENIOR PROGRAMMER
UNITED PARCEL SERVICE
OF AMERICA INC.

During the peak holiday season, UPS encourages its IT employees to pitch in and help on delivery trucks. McDonough spent two and a half weeks helping route drivers deliver packages.

The job:

Inventory, scan and load packages; drive to houses; scan deliveries; get signatures; download DIAD (a portable delivery information acquisition device that all UPS route people carry). Also pick up and deliver lost puppies, help ladies rearrange living room furniture and provide other assistance as needed.

Lessons learned:

McDonough saw "how crucial the DIAD is to the business, how important technology is for the drivers and how they appreciate it and rely on it. It also gave me a great hands-on view of the services UPS provides and simplified everything so I could understand all the package and service codes.

"Right now, we're going through a rearchitecture in the billing apps area. Being on the route has enlightened me to what it all means, and so I'm better able to think about how to organize the information and how to report. Instead of building a monster, I can build a smaller app if I know what I'm doing."

MARK NARDONE
MANAGER OF IT
1-800-FLOWERS INC.

Nardone's job is to keep IT aligned with business objectives by spending most of his time with businesspeople, often in the retail flower stores. He passes his insights on to the manager of development in IT.

The job:

Prepare, cut, arrange, sell and deliver flowers; work with marketing and other business units.

Lessons learned:

"You get a lot of insights into human behavior selling flowers. On Valentine's Day, I was taking orders on the phone, and someone called in ordering for five different women, and the message for each was, 'You're the only one,' he says. "I spent 15 years in development. Seeing how it really works with people gives you a different perspective. Now I'm a florist first and an IT guy second. I'm excited about what it can do for our business.

"For example, we were doing craft workshops at the stores, and we decided during a marketing meeting that we wanted to let our telephone customers know about that. So I said [to IT]: 'Guys, this is what we want to do.' Now, when an associate takes a customer's ZIP code on the phone, [the system gives him] a prompt on his screen to tell customers if there's a workshop happening in their area," Nardone says.□

Melymuka is Computerworld's senior editor, management.

WARRANTY WARFARE

Most software comes with warranties that are worth their weight in play money. Here's how to get 'real' protection

By Alan S. Horowitz

IF YOU THINK THE TYPICAL software warranty protects you from software problems, think again. "In most cases, warranties are worthless. Software, in many cases, comes out with bugs and the bugs are fixed in their sweet time," says Garrett Grainger, vice president of information systems at Dixon Ticonderoga, a manufacturer in Heathrow, Fla.

Many observers agree that today's standard software warranties are weak. Often only the media, such as the CD-ROM, is under warranty. "[Most] warranties say the media is good for 90 days, but who cares? If the code on the media is no good, you just wasted your money," notes Earl Griffith, director of information technology purchasing at Bass Hotels & Resorts Inc. in Atlanta. Or the software may be fine, but installation may be next to impossible. "You really need to look at the entire solution and the warranties applicable to all elements of the solution," says William B. Bierce, an attorney at the New York law firm Bierce & Kenerson PC.

With warranties for shrink-wrapped software set in place, it's hard to negotiate changes unless you buy in very large quantities. Generally, the higher the price and the greater the degree the product has been customized, the greater the wiggle room. For shrink-wrapped products, you might get a better warranty only if you buy in large quantities — maybe.

"The more you go from mass-produced [software to customized software], the more you're on your own to make sure you're getting what you are paying for," thereby giving you more room to negotiate, says Ken Sidon, executive vice president of IS and CIO at Medical Mutual of Ohio in Cleveland.

Hard as it may be, it's still possible to protect yourself in the event your software doesn't work. Here's how:

DON'T IGNORE THE BASICS

Griffith focuses on these. Will your product process dates before, during and after Jan. 1, 2000? Is the product warrantied to work as described in documentation? Is it warrantied against carrying viruses?

The more you want customized software from a vendor, the more room you have to negotiate with the vendor, says Ken Sidon at Medical Mutual of Ohio

GET PROMISES GUARANTEED IN WRITING

What the salesperson promises vs. what the software delivers can be worlds apart. Be sure the language of your warranty covers the salesperson's promises.

GET A WARRANTY THAT SAYS THE PACKAGE WILL WORK ON YOUR SYSTEM

"If you bring in a new package, [give the vendor] the specs of your environment, and have them warranty it [to] work in that environment," says Mike Cummins, vice president of MIS at VHA Inc., a health care cooperative in Irving, Texas. For example, Cummins will include operating system specifications — such as several iterations of Windows — as part of his compatibility requirements. Then, "we specify where our environment is today and where we think it will change. . . . I now have Novell's IPX but will work next year with TCP/IP with Novell, so I want [the vendor] to work with that," he says.

USE A TEAM TO NEGOTIATE

The team should include technical, procurement, contracts and finance folks because software touches so many areas of an organization, says Joe Auer, president of International Computer Negotiations in Winter Park, Fla., a company that trains managers how to negotiate with IT vendors.

ADD REMEDIES TO THE WARRANTY

Warranties are only as good as their remedies. Auer notes that warranties should address time, money and quality. How long will it take to set up, how good is it going to be and how much will it cost? Specificity is the key to good warranties, he says. "You must have, in the contract, metrics to measure and monitor. If you don't do that, you don't have remedies, and you're just wasting your time with warranties," Auer says.

Cummins takes the opposite approach. "Generally, we don't get that specific with remedies. The legal people don't like that because it closes as many doors as it opens," he says. For example, if you define the exact amount of throughput for a given time period of the day, you might get excellent service for that time period and less-than-adequate service at other times. Instead of relying heavily on warranties, Cummins establishes relationships with his vendors and lets them know that if they don't serve him well, they won't get any more of his business.

BE REALISTIC

"People still ask for bug-free software, and they want you to warrant[y] that," says Karen Casser, president of the Computer Law Association and counsel at the Washington law firm Arnold & Porter. "[But] no software is bug-free."

Casser suggests focusing on how and when problems will be resolved and who will pay for them.

BUY PROVEN TECHNOLOGY

Offers Tim Schlung, CIO at Transwestern Insurance Administrators, a third-party administrator in Fresno, Calif., "We usually shop for software that's been on a system for more than two years so we have a track record."□

Horowitz is a freelance writer in Salt Lake City.

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PETER G. W. KEEN

LET'S PUT PROJECT MANAGEMENT OUT OF ITS MISERY

roject management obviously is the core of software delivery and systems integration. Let's get rid of it.

After 40 years of sustained effort, most reports are that more than half of systems development projects are late, canceled or viewed as failures by business users. When good people get bad results time after time, their operation needs to be scrutinized.

For me, there's a problem that established approaches to project management will never solve: the conflict between the need for rigorous structuring and systematic discipline in managing the technical work, and the opposite requirement for flexible coordination of the relationships that compose not only the project but also the business venture.

Organizations yo-yo between the two extremes. The systematic tradition has been built around such methods as software development life cycle (SDLC), computer-aided software engineering (CASE), IBM's once-influential BSP (Business Systems Planning), function-point analysis and project sizing and Andersen Consulting's Method/1. The relationship tradition has offered prototyping, IBM's Joint Application Development and groupware.

These don't mesh well. The systematic approach too easily becomes project management bureaucracy and neglects the organizational side of implementation, especially in not looking beyond the project to education, support and rollout. The relationship approach often fails to keep on top of the need for highly disciplined control of the technical work. (Informal, flexible systems testing is an oxymoron.) Also, a complex venture, such as an enterprise resource planning system, involves many technical and organizational subprojects, teams, relationships and agendas.

Success requires that they all fit together. But the team designing the physical data model isn't looking ahead at training needs, the user team isn't concerned about server configuration, and the systems programmers aren't talking with the business team working to streamline customer-supplier business processes. The result? Everyone feels their part of the project is on track when the overall project is on the brink of disaster.

NEW THINKING

Recently, I've been working with a Web-based system that, for me, is the light at the end of the tunnel. It's ActionWorks Express from Action Technologies in Alameda, Calif. (*www.actiontech.com*). I strongly recommend it; the body of thinking behind it is the source of many of my own ideas and recommendations to clients about how information technology units can transform their organizations, relationships and payoff for the business. (A disclaimer: I have no financial interest in Express, but it's the product of a company part-owned by a friend with whom I'm the co-author of a coming book.)

Express reminds me of the spreadsheet revolution created by Visicalc and accelerated by Lotus 1-2-3. Visicalc generated a new way of thinking about budgets and financial planning. Similarly, Express is a mental and process framework for viewing project management as the coordination of a complex set of commitments that include many types of teams, priorities and varieties of work. The technical tasks are part of this combination, all of which must be viewed and handled from the top-down perspective of how they fit together and bottom-up in terms of their individual requirements, nature and need for structure vs. flexibility.

The product embodies an important insight: Successful software development and systems integration require commitment management, not project management. Companies should restart their IT processes around technical and organizational commitments and the relationships between them. Typically, technology commitments are defined by design specifications, schedules and deliverables.

That's still needed, but organizational commitments and their interrelations with technology components are more defined by relationships, communication and interaction. It means tracking negotiations, mutual agreements, renegotiations, timing and interdependencies — which often are overlooked by project managers and their tools.

Managing commitments will require retooling. The traditional tools — SDLC, CASE, BSP and groupware — embody the process model of systems, engineering and structure. The emerging mainstream in business is coordination of relationships — supply chain, alliances, teams, etc. That's the direction for IT and its tool box.

Get rid of the whole mind-set and apparatus of project management. The message IT itself endorsed about reengineering was that businesses need to radically transform the processes that most affect the customer relationship. IT must transform the processes that most affect the payoff from IT, the credibility of IT and its customer relationships. Substitute commitments, coordination and relationships for projects, management and schedules, and the transformation will get under way. □

Keen is the co-editor of a newsletter called "YOU2K Now." For more information, visit his Web site at www.you2k.com. *His Internet address is peter@peterkeen.com.*

f.y.i.

MEASURE YOUR EMPLOYEES' DISCONTENT

Wondering why your IT people quit? The answer could be right under your nose, says Diane Tunick, an analyst at Gartner Group Inc. in Stamford, Conn.

She suggests two ways for information technology managers to get a better handle on employee satisfaction and what they can do to affect it.

Create a "vulnerability index," she says. Get a group of employees to discuss positive and negative aspects of work. For example, recognition, performance-related bonuses and flexible work hours are positive; low merit raises, being passed over for promotions and weekend work are negative. Have the group assign each item positive or negative points based on its ability to delight or annoy. Then, use the index to rate each employee's situation. A positive net result indicates satisfaction, and a negative indicates an employee in danger of leaving.

"This is a great risk-analysis tool," Tunick says. "You can use it to focus on the individual, and if you use it across a department, you may recognize that the level of dissatisfaction is so high in that group that anyone could poach them away."

Once you understand what makes employees unhappy, you can do something about it. Tunick recommends that managers prioritize factors that lead to employee satisfaction, then rate their own ability to influence those factors.

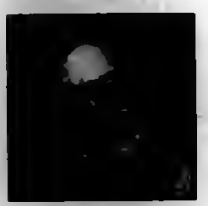
For example, although compensation may be a key to satisfaction, you as a manager may have very little ability to influence it. Other factors, such as recognition and training, may be easier to affect.

Focus on what you can influence, Tunick says, while alerting others, such as your managers, to the factors they can influence. "You can't be resigned to not having control," she says. "You have to be continually driving home the fact that 'I can't control this, but you can.' "

...t management obviously is the ...f software delivery and systems ...tion. Let's get rid of it.

PETER G. W. KEEN

LET'S PUT PROJECT MANAGEMENT OUT OF ITS MISERY



... sustained effort, ... more than half of ... projects are late, ... failures by busi... people get bad ... time, their operation ... optimized.

There's a problem that ... approaches to project man... will never solve: the conflict between the need for rigorous structuring and systematic discipline in managing the technical work, and the opposite requirement for flexible coordination of the relationships that compose not only the project but also the business venture.

Organizations yo-yo between the two extremes. The systematic tradition has been built around such methods as software development life cycle (SDLC), computer-aided software engineering (CASE), IBM's once-influential BSP (Business Systems Planning), function-point analysis and project sizing and Andersen Consulting's Method/1. The relationship tradition has offered prototyping, IBM's Joint Application Development and groupware.

These don't mesh well. The systematic approach too easily becomes project management bureaucracy and neglects the organizational side of implementation, especially in not looking beyond the project to education, support and rollout. The relationship approach often fails to keep on top of the need for highly disciplined control of the technical work. (Informal, flexible systems testing is an oxymoron.) Also, a complex venture, such as an enterprise resource planning system, involves many technical and organizational subprojects, teams, relationships and agendas.

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Review Center

Code Season

High demand spurs growth of HTML tools, ranging from simple to complex

By Christopher Lindquist

COBOL, C, BASIC — and HTML? Despite its relative simplicity, HTML, the Web programming language, is rapidly becoming a critical component in business. In fact, HTML's importance has accelerated so quickly that tool vendors have had trouble keeping pace.

Even today, it isn't unusual to find professional Web-code creators using a general-purpose text editor such as Microsoft Corp.'s WordPad or the GNU Project's Emacs for their day-to-day coding. For some of them, it's a quasi-religious issue, but for others, it's a matter of control. That doesn't mean developers can't find value in the slew of other, more sophisticated HTML tools that have appeared on the market.

I chose a handful of the current HTML editing products to compare what they can — and can't — do for your enterprise development efforts. What I found is that there's an HTML development tool for nearly any task, but none combines all the best features in one package.

Nothing but basic text

If you want something done right, do it yourself. So goes the mantra for the hand coders on your development teams — especially those who insist on using a plain-text editor. Those minimalists do gain some advantages, of course. They can tweak their code to look just the way they want it, right down to tabs and spacing. And they don't have to worry about a pile of menus and tool bars getting in their way. But they also can pay a price.

WordPad won't automatically highlight code typos, nor will it link nicely with an HTML validator or file transfer protocol (FTP) client to help coders test and post Web pages. And when trying to create a large number of pages in a short time, hand coding page-by-page can be an incredible time sink.

That doesn't mean some text editors aren't better than others. Macintosh users have long taken advantage of Bare Bones Software Inc.'s BBEdit (*www.barebones.com*). This amazingly flexible editor can be configured and scripted to do almost anything, from quickly building HTML tables to reading E-mail. And the recently released BBEdit 5.0 offers even more features, including context-sensitive tag completion and a drag-and-drop palette of Web-safe colors.

You can get the same level of power in the freeware legend Emacs (*www.gnu.org*). Although not as easy to use and configure as BBEdit (getting the most out of the product requires learning the Emacs LISP scripting language), Emacs 20.1 runs on everything from DOS to Unix. And its adherents have created countless macro scripts that give it almost supernatural powers — including the ability to help users write HTML code more quickly.

Advanced HTML text editors

The next step up from a straight text editor is what most people call an HTML editor, which essentially is a word processor

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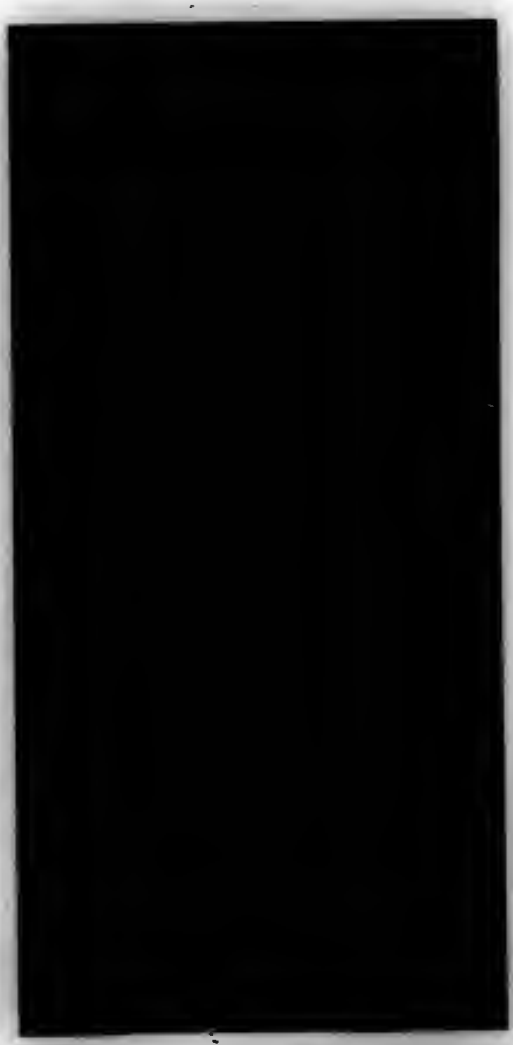

Bob Stone Gamet

Code Season

CONTINUED FROM PAGE 65

specifically tweaked to create HTML. For many development efforts, such tools are the optimal choice. With online HTML references; wizards to help create tables, frames and forms; and built-in FTP clients for posting pages to a site, they can speed development cycles. One of the most popular — and powerful — HTML editors to include those features and more is Allaire Corp.'s HomeSite 4.0 (*www.allaire.com*).

HomeSite began as an attempt to build the perfect HTML editor. The idea behind it was simple enough: to figure out what HTML coders needed the most, then put those features within easy reach.

The latest version goes far beyond that. In addition to the familiar tabbed tool bars and menus, HomeSite 4.0 lets users create code snippets and keyboard shortcuts for common commands. Developers can even build and share JavaScript macros to automate repetitive chores.

With HomeSite 4.0, Allaire also is making a move into the professional development tool arena with features IT departments can appreciate, including the capability to connect to Microsoft's Visual SourceSafe (*www.microsoft.com*) source-code control product. That lets members of a development group work on a site without stepping on one another's toes. Allaire also has built in Design View, which lets users quickly build forms and tables without writing any code.

Drag-and-drop editing

HomeSite's Design View can be useful, but it isn't a full-blown authoring environment. And with the Web becoming more competitive every day, rapid development sometimes outweighs the importance of creating the tightest, nicest looking code for a company's site.

In those cases, a WYSIWYG editor may be the best option — if users understand any existing limitations before they get started. WYSIWYG editors vary greatly in their power, features and ability to create clean code. But they all can be lifesavers when a company needs to produce a lot of pages very quickly.

WYSIWYG editors let users drag and position elements — such as images, links and applets — onto a page. The editor then creates the underlying code behind the scenes. But because there can be many ways to perform the same action in HTML, WYSIWYG editor vendors have to create sets of rules that determine how the actual code will look.

Those rules have been the source of most complaints about WYSIWYG HTML editors in the past. Tools such as NetObjects Inc.'s NetObjects Fusion 3.0 (*www.netobjects.com*) and Elemental Software's Drumbeat 2.0 (*www.drumbeat.com*) can create "spaghetti code" that's barely readable. Things often look better if users write specifically for 4.0 browsers and use layers instead of tables for object placement. And Microsoft's FrontPage 98 sometimes inserts its own proprietary tags and formatting into pages, even if users import pages they hand-coded themselves with another tool.

But makers of WYSIWYG editors have heard the complaints and are easing their way toward tools that combine flexibility and ease of use along with control.

Macromedia Inc.'s Dreamweaver 1.2, for example, (*www.dreamweaver.com*) includes a feature called Roundtrip HTML, which preserves code integrity when switching between WYSIWYG and text-based HTML editing. And Microsoft's upcoming FrontPage 2000 promises to tread more lightly on imported code.

Easy database connections

Database-driven sites will be critical for corporate sites in the future, but many HTML editors don't offer much help. Those that do can be lifesavers. HomeSite 4.0 doesn't have many database-specific features on its own, but it serves as the foundation for Allaire's Cold Fusion Studio, which lets users retrieve information directly from databases and integrate it into Web pages using Allaire's proprietary Cold Fusion server and tags.

Anyone interested in using Microsoft's Active Server Pages to serve up live database data has several options. The easiest and cheapest is Microsoft's FrontPage 98, which lets users create and deploy dynamic pages on any Web server that supports Active Server Pages. FrontPage also bundles in a bevy of interesting toys, including page-hit counters and guest books — all of which require a server that supports the FrontPage extensions, such as Internet Information Server.

Anyone who finds FrontPage too Microsoft-centric will definitely dislike Visual Interdev. But anyone dedicated to creating powerful, active pages, especially for Microsoft's servers and browsers, should like it. Visual Interdev is a hard-core development tool. Microsoft has made a point of making it behave like the rest of its Visual Studio tools, such as Visual C++ and Visual Basic.

As a result, serious developers experienced with other Microsoft

tools should have little trouble moving right in and getting work done.

Tools for large teams

Visual Interdev also lets large development teams keep better control of their code through its support for Microsoft's Visual SourceSafe version control software. But Interdev isn't the only product with such control features. NetObjects Fusion Authoring Server Suite also supports version control, access control and remote contribution, which is useful for telecommuting workers.

With so many options, it can be difficult to decide exactly which editor to use. Fortunately, this is the Age of the Demo. Nearly all the editors mentioned have trial versions you can install and use. If you're still pounding out the code with that old text editor, you owe it to yourself — and your company — to download a couple and give them a try. □

Lindquist is a reviewer in Moss Beach, Calif.

Maybe you don't need an HTML editor

Depending on the job at hand, users may not need an HTML editor. If you have end users who need to post only an occasional spreadsheet or press release to the company intranet, expecting them to learn HTML or the ins and outs of a WYSIWYG editor may be overkill.

At the same time, simply having them use the HTML output features of most office productivity packages hardly results in classy Web pages. But there are a couple of alternatives. Trellix Corp.'s Trellix 2.0 (*www.trellix.com*) lets users easily lay out and publish Web pages without having to learn HTML. Its Office 97-like interface will be familiar to most users. And its ability to import and automatically break Word files into multiple pages for easier online viewing can come in handy. Plus, each Trellix-created page contains a built-in map that graphically displays links to related pages.

At $249, it isn't cheap, but it might be a good investment for employees in departments such as human resources or marketing who need to post good-looking pages but don't want to become Web programmers.

While less Web-centric, Design Intelligence Inc.'s iPublish (*www.design-intelligence.com*) desktop publishing tool lets users quickly create good-looking pages based on the included templates and then export them to HTML. It isn't quite as powerful or flexible as Trellix, but it costs only $99. And it doubles nicely as a print-based publishing package.

Although neither package provides the level of detailed control necessary to keep a serious Web programmer happy for long, both are worth considering for less technical tasks.

— Christopher Lindquist

EXECUTIVE TECHNOLOGY

ERGONOMIC KEYBOARDS

By David Essex

There's a whiff of New Age charlatanism about ergonomic keyboards, and the people who sell them have a social worker's earnestness. So it seems politically incorrect to question the keyboards' value to the merely curious when there are people who must use special keyboards because they don't have full use of their hands or are desperately trying every remedy to avoid excruciating pain and a debilitating case of carpal tunnel syndrome.

However, independent tests are inconclusive about whether such keyboards have long-term health benefits. In a 1995 study, the National Institute for Occupational Safety and Health in Cincinnati (*www.cdc.gov/niosh*) noted "no significant differences" in comfort and fatigue between standard keyboards and split and adjustable ergonomic keyboards. But I think that if an ergonomic keyboard makes typing more comfortable — or possible, for someone with mobility problems — it's worth the $60 to $300.

Ergonomic keyboards come in the following three major varieties, according to Gary Karp, an ergonomics consultant at Onsight in San Francisco:

- The most popular type is also the least radical and is exemplified by the market leader, the Microsoft Natural Keyboard Elite, with its graceful curves and broad hump in the middle.
- The second type is called adjustable, represented here by Cherry Electrical's Ergo Plus. Adjustables have a split down the middle and movable legs and connectors.
- The third type is the contoured keyboard, such as the Kinesis Classic reviewed here. Contoured keyboards put the alphanumeric keys in two little concave wells while moving control keys such as Backspace and Enter to — gasp! — the middle, under your thumbs.

I found all three types to be awkward at first (for a sanity check, I asked my wife to try them; they were awkward for her, too). But they became more comfortable than standard keyboards after two- to four-day break-in periods. I would classify myself as a fairly fast typist.

DEFINITION

Ergonomic keyboards conform to our natural range of movement. They tend to push a user's hands a couple of inches farther apart than on a QWERTY layout, while raising the thumbs up. The Backspace key and the numeric keypad are placed closer so fingers and arms don't have to stretch as far. Ergonomic principles say all these things help users avoid straining everything, from their little fingers to their wrists and shoulders, into positions with names such as forearm pronation (the forearm twisting that results when thumbs and palms are parallel to a flat keyboard).

NATURAL KEYBOARD ELITE

Microsoft Corp.
www.microsoft.com
PRICE: $64.95

Like its competitors, Microsoft's Natural Keyboard Elite makes you invest a little "pain" up front to avoid more pain in the long run. At first, I found that its wide split and repositioned arrow keys made it impossible to hit many keys without looking down. But now I think the little star of arrows is better positioned than those on either the Kinesis or Cherry Electrical keyboards (it's in the lower right between the alphanumeric section and the standard numeric keypad).

The Elite adds three Windows-specific keys to the traditional 101: one to call up the Start menu, a second for programmable shortcuts and a third that acts like a right mouse button to bring up context-sensitive help. All are oversize and located in the bottom row with similarly fat Ctrl and Alt keys and a huge spacebar, which sits at the peak of the more than 3-inch-deep palm rest.

Released last January, the Elite is approximately a inches narrower and slightly less deep than its predecessor, the Natural. Also new is an optional connector for Universal Serial Bus ports.

ERGO PLUS (G80-5000)

Cherry Electrical Products
www.cherrycorp.com
PRICE: $125 to $150 (street)

The Ergo Plus is a pleasing combination of a more-or-less standard IBM keyboard layout and an amazing number of adjustment choices. It also chops off the numeric keypad, making it a $25 to $30 option that you can position anywhere on your desk.

You can start in the basic position for an 8-degree angle of elevation, or raise four rear feet to reach 12 degrees, as on a standard keyboard with feet. Things get interesting when you pull the two halves far apart (the spacebars even slide to bridge the gap) and raise combinations of the 10 rubberized feet, culminating in the steep incline: a tent-like configuration that raises the halves 10 degrees in the middle. I was partial to the shallow (5-degree) incline with a 1-inch separation.

Two small gripes: The page-movement keys are grouped in a nonstandard layout at the far right, and the data cable is inflexible and nonrecessed, so you can't position the keyboard against the computer without shifting it to the side — a problem only if your desk is shallow.

THE CLASSIC

Kinesis Corp.
www.kinesis-ergo.com
PRICE: $275

A touch typist since my junior year in high school, I don't easily tolerate changes to my keyboard's layout. That's probably because it's hard to change one's kinesthetic, or body, sense. Years of familiarity are hard to break, and few keyboards (excluding those that dump the QWERTY layout altogether) require more change than the Kinesis Classic, a popular contoured keyboard.

The Classic puts alphabetic keys as close as can be: in deep hollows, on a grid like a spreadsheet. Because I'm used to the staggered rows of standard keyboards, I found myself constantly reaching too far for most keys or missing them by a half-inch, which the manual warns about. (The phantom Backspace was hardest to nail, but I decided not to reprogram it — a potentially useful option — once I saw the good in having it literally under my thumb.) After a few days, I got the hang of the Classic, thanks in part to an inelegant but useful interactive DOS tutorial, which begins with tentative forays beyond the home rows.

The Kinesis Classic seems to offer the best long-term potential of the three keyboards — if you have the patience. □

Essex is a reviewer in Antrim, N.H.

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In Depth

The 3-D Customer

BY CHUCK MARTIN

THE FOLLOWING IS AN EXCERPT FROM MARTIN'S NEW BOOK, *NET FUTURE*

The new ability to tap information means that companies will have an increasingly well-rounded relationship with their customers. Companies will be able to link information obtained over the Internet with information already in their data warehouses.

They will be truly customer-centric, able to develop and maintain a unique relationship with each customer. Such relationships will be especially important in high-touch industries with a lot of direct customer interaction: banking, insurance, telecommunications and catalog sales. The representatives who deal directly with the customer will have at their fingertips a fuller portrait of the whole customer, and that portrait will be available whether the customer contacts the company in person, on the phone, over the Net or through the mail. The customer portrait will change just as the customer's needs and concerns change: in real time.

REAL TIME, REAL MONEY

Perhaps in no other realm is real-time customer data more critical than on Wall Street, where a 15-minute delay can mean the loss of millions of dollars to traders and their institutional clients. Traditionally, investment banks have been organized around product — equity investments, bonds, emerging markets and so on — rather than around their customers: large institutional investors such as mutual fund portfolio managers. However, in an era when massive amounts of information are available to anyone who can install a Reuters or Bloomberg terminal on a desk, people who sell to money managers must figure out how to cut through the infoglut to make themselves valuable to those customers.

Organizing around the customer is the only way for the Bankers Trusts and Morgan Stanleys of the world to do that. Alexis Kopikis and his two co-founders of WorldStreet Corp. were salespeople at Ing Baring Securities until they decided to start a company that would address the information needs of institutional securities sales reps like themselves. They are developing a browser-based system that organizes and tracks all information a company has about each client and matches that customer profile to information about specific investments, regions, sectors and market events — all in the split-second time frame that can make or break a megainvestor. Says co-founder Kopikis:

"Ten or 15 years ago, as an institutional salesman, I could call and tell you what a security's selling for and make a sale. Nowadays, everyone has access to the same data. The industry has become more service-oriented. The way they try to differentiate themselves is by who

The 3-D Customer, page 70

The 3-D Customer

CONTINUED FROM PAGE 69

can give the ideas that are the most relevant to the portfolio managers. We have access to a world of data, but we don't know what's relevant to what client when. I used to cover 200 securities in Latin America alone. The large institutions are trading all day long in securities all around the world. There's no way to know what's most important to whom; there are too many variables to match up.

"I used to call somebody and say, 'How about this stock?' Half the time they'd say, 'How many times do I have to tell you guys I'm not in that sector anymore,' or 'Why are you calling me? I just sold 50 million of it. Talk to your trader in Brazil.' Ordinary pipeline management tools don't work in this environment; on the trading floor, my pipeline is measured in minutes, even seconds. It's not only salesmen who are involved in selling to these guys; it's traders, research analysts, other salespeople. When you're selling as a team, it's important that everybody's pitching from the same book.

"Imagine if you went to a car dealership and one person said, 'Buy the blue car.' You came back a second time and another person said, 'Buy the red car.' And then when you went to pick it up, someone said, 'Why did you buy that? The green one's the way to go.' Your perception of a broker changes rapidly when that occurs. Institutional salesmen need to know in real time what interactions their entire company has had with this client, and they need to be able to share investment picks with one another.

"The focus in automating the process in the past has not been on the customer. It has been on the trader — on doing trades faster, handling larger trades, doing more sophisticated risk assessment. Salespeople need to map in real time the sources of incoming data to client profiles made up of their current interests, holdings, trade histories and real-time activities.

CAPTURING CUSTOMER DATA

"Some of our clients are already beginning to use their extranets to capture customer information in real time. If their customers are clicking around on their extranet — let's say they're clicking around reading about U.S. steel companies — that activity on the Web site automatically updates their profile in real time. It's real-time client management instead of sitting there figuring out when to do a marketing campaign. This kind of real-time customer interaction is a change we're seeing in other industries as well."

Net Future

The 7 cyber trends that will drive your business, create new wealth and define your future

■ *McGraw-Hill, New York; hardcover; 289 pages; $24.95*

Another company that is exploring how to make the best of the customer as data is Chrysler Corp., now part of DaimlerChrysler. Richard Everett, director of strategic technologies, sales and marketing operations, heads Chrysler's online efforts.

"The big investment will be in data. Where are the customer preferences kept? Companies will need to be able to lock into that information. At any point in time, I may need to know everything about that customer, since customer service is everything, and I will need that data when that customer wants service. The real, unmined value nobody talks about is customer relation management. Once you understand the 220 attributes you have per customer, you can get away from mass advertising and target directly. That very targeted advantage will come from knowing exactly who the customers are.

"We have 47 million records in our database. We separate people by the categories of bought new, bought used, bought new/still own and bought used/still own — which is the biggest opportunity, along with bought new/don't still have.

"The car dealer network isn't going away. People still want to trade and want positive reinforcement that they're buying the right thing. It's a personification of their personality. And an automobile is still a periodic purchase, since the average person only does this once every six years. In the car business, you've got the switchers, the loyalists, the utilitarians and the newbies; that's it. The people who come through the dealership door who have used the Net know exactly what they want.

"By October, we've committed materials for November and December. If we miss the number, between two-doors and four-doors, cloth and leather, we have six months of a model year to work ourselves out of it. If we knew up front what the public wanted, we could take an immense amount of money out of the cost in the system.

"In addition, we should be able to say we just had a management meeting and decided on a $500 rebate on a certain car. We then would automatically find the 17,000 people in the database and send them an E-mail, so that all the people who had an interest in the particular vehicle would get a note saying, 'Here's a rebate offer that really matters to you.'

"We'd automatically check the address and identify the closest dealer, then check that dealer's inventory of cars for availability and even color and then add that information into the E-mail to the customer. The customer's E-mail says, 'Here's the closest dealer to you, and here's what he has in inventory of that particular car.' The dealer also would automatically get a copy of the E-mail. We can get a person approved for finance now in about three minutes. Think of what that does when you tie all that together."

Everett sees enormous opportunity in capturing customer data and mining that data to streamline the manufacturing process. "People can configure a car on the Net, and we'll be able to check, geographically, which markets might want a certain color and body type," he says. "We then can make those kinds of cars for specific markets. We then can reduce the inventory on the lots, which impacts the real estate needed by the dealers. If you can predictively understand what people are going to buy, it will drive a tremendous amount of excess out of inventory. We're gathering information and understanding of what people are doing out there. This is real-time research."

As is typical in the Net Future, Chrysler's online investment might appear to be aimed simply at stimulating car sales; in reality, its true return will come from streamlining its entire manufacturing and delivery operations based on real-time customer data. This is another example of how true electronic business requires end-to-end networking, driven by the consumer.

From Net Future, *by Chuck Martin. Copyright 1999 by Chuck Martin. Reprinted by permission of the McGraw-Hill Cos.*

Martin, an author and speaker on the interactive marketplace, is president of the Net Future Institute. A former vice president at IBM, he also wrote the book The Digital Estate *(McGraw-Hill, New York, 1997).*

IT Careers

Get Your BEST Raise

By Rochelle Garner

Few things can be as emotionally draining or stressful as asking for a raise. You know, just *know*, you're worth more money than you're being paid. But you aren't quite convinced that your company appreciates you as much as you think it should.

The trouble is, negotiating for a raise can be fraught with peril. Just ask the information technology managers who hold the purse strings. We did — we asked several, in fact — and they shared their thoughts on what would persuade them to give generously. Their collective advice: Present yourself correctly and you can walk away with the raise of your dreams; approach your manager like a steamroller looking for an accident and you can kiss your raise goodbye.

What follows is their shortlist of the dos and don'ts of playing the raise game.

DO

DO PLAN THE AGENDA. Know exactly what you want to cover before you ever sit down with your manager.

DO KEEP TO A FIXED TIME. If a meeting is scheduled to last 30 minutes, stick to the clock. This goes hand in hand with planning the agenda. The reason: When salary discussions stretch on too long, they tend to get personal. They wound by recrimination. If that happens, you've lost.

DO ASK HOW YOU'RE DOING. This is your conversation opener, right after "Thanks for talking to me." That's because it establishes how well the company likes your work and that your manager respects you for what you contribute. That feedback provides the foundation for the rest of the negotiation.

DO AFFIRM YOUR COMMITMENT. Make it crystal clear that you believe in the corporate cause and are determined to add value toward its success. This provides the framework for discussing your corporate worth and establishes your helpfulness as an employee. It makes it easier to say just what you need for that finishing touch to make you even happier.

DO INITIATE THE MEETING WELL AHEAD OF TIME. Try to set up this discussion one or two months before a regularly scheduled raise period. This gives managers a heads-up for using their discretion to budget raises and promotions throughout a department.

DO HIGHLIGHT YOUR SKILLS. So, this past year you've honed your Java programming, sharpened your project management skills and helped build a smoothly humming team. Congratulations. But now you have to point out those skills, indicate how much money other, equally accomplished professionals in your area earn and politely ask how the company intends to stay competitive.

DO PREPARE YOUR ANSWERS. Try to think of every reason the manager could say no to your request. Then figure out how to answer those objections. Is the budget too tight this year? Then ask whether the company can plan now for your raise in next year's budget.

DON'T

DON'T THREATEN. Don't threaten to quit. Don't threaten to tell someone else. In fact, don't make any element of the discussion a threat. If you do, the person on the other side of the table will focus on your attempt at intimidation instead of what you're trying to accomplish. If you really feel that not getting the raise will drive you to another company, then quit. It's better to execute the threat than to voice it.

DON'T CAST DOUBT ON STAYING WITH THE COMPANY. That's a veiled threat. See above.

DON'T STAY INFLEXIBLE. Sure, you may walk into the meeting wanting a 10% raise. But a 7% raise, combined with 15 days off, can amount to the same thing.

DON'T SOUND NEGATIVE. Complaining sets up a problem, not a solution.

DON'T GET ANGRY. This is so important, it bears repeating. Don't get angry — no matter what the circumstances. If your manager gets angry, don't respond. Of course, that's difficult, but it's also imperative. Those who lose their cool — regardless of which side of the table they sit on — give up any position of strength in the negotiation.

DON'T COMPARE YOURSELF WITH OTHERS. Make your case for yourself, not against other people. Dissing a colleague only makes you look bad.

DON'T USE CANNED SALARY SURVEYS. Don't rely on published salary surveys, whose results are usually classified as "ballpark" figures. And don't bank on what you hear from your cubemate or friendly neighborhood headhunter. Instead, contact your local chamber of commerce for the salary ranges offered in your area, and talk to friends in similar positions at other local companies. And present that information as a way for the company to stay competitive. □

Garner is a freelance writer in San Carlos, Calif.

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ADVICE FOR THE IT PROFESSIONAL

SO YOU WANNA BE A CIO...

So, you think you want to be a CIO? Well, there's a lot more required in this game than just mastering technology. Listen to Mark Brown, CIO at Viking Office Products, explain what it's really like at the top

BY LINA FAFARD

HOW

FRESHLY ARMED with a computer science degree, Mark Brown began his IT career coding Cobol for an auto parts supply company in Chicago. He did well at his first IT job, gaining both new technology and business skills that soon led to a job heading the data processing department at a $50 million paper company. For 12 years he did all the company's systems designs and programming.

Brown then tried his hand at consulting, taking an assignment at $50 million Viking Office Products Inc. (recently acquired by Delray Beach, Fla.-based Office Depot). Brown was soon recruited to run the IT group. The data processing shop was in disarray. The IT department consisted of an IBM System/38, one employee and two contractors.

In just three years, Viking's revenue grew from $50 million to $150 million. It had multiple 38s across the U.S. and established operations in Europe. The company went public and continued its growth overseas. The IT responsibilities skyrocketed.

NOW

As CIO, Brown's responsibilities are providing for the company's IT needs worldwide. That includes managing the IT budget and leading efforts to make sure the infrastructure is in place to support the organization.

The technical environment at Office Depot consists of AS/400s, top-end machines using NetWare and Windows NT for a few specialized applications. The company has five U.S. call centers, all connected. The clients are PCs running Windows 95 with Microsoft Office. The AS/400 applications are written in RPG, and they run on the PCs with emulation software. Viking developed software in-house until two years ago, when it went with J. D. Edwards for worldwide operations. As Office Depot grew, Brown expanded the IT staff to 150 people worldwide.

WHO

Brown says success as a CIO requires a leader who has good technical skills but who can remain neutral from a technical standpoint. "One must choose technology that will drive the business [but] not just to stay ahead; the choices have to be cost-effective," he says. If you're a leader, he says, "you have to be flexible. If you're wrong, acknowledge it and change."

A good CIO, Brown says, must be as capable in addressing the technical aspects of the job as he is in dealing with people and with the design sessions, which Brown says are the most enjoyable aspects of his position. He says he also likes being involved in the company's strategizing — analyzing country-specific information to assess the possible application or relevance of their models. Brown, who says he loves constant change, says adapting to new conditions is the key to being successful.

Choosing solid technology was a pivotal move for Brown's IT organization, along with creating focused recruiting efforts, which resulted in a close and loyal team. People "can be technically brilliant, but if they can't get along, the project will fail," Brown says.

WHAT

As CIO, knowing which technical strategies are worth implementing and which aren't is critical. Technology must support the needs of the business based on software and hardware market leaders and the ability to get the talent. You must be conservative; for rollouts, you need a robust system and return on investment.

A lot of the decision-making process is the gut feeling you get about the products and systems, Brown says. You can't assume that products will work in your environment.

Brown says he reads trade journals, magazines and numerous computer industry reports to keep up with technology. He has NT installed at home and stays up-to-date with Microsoft's tools. By using the same technology at home and at the office, he says, he can anticipate where it can be used in his organization.

Brown's advice for up-and-coming IT professionals: Be a people person. Don't align yourself closely with just top management, but also "build alliances with the user community. Be a company politician. Realize the demands on the department far outweigh the resources. Set priorities. Have a good steering committee from the company in place. Keep the users at bay — or the process breaks down. Make sure people realize the cost of the project when they come to you."

And good interpersonal skills are critical, Brown says. Make sure users are satisfied. Know that the job is stressful and that you will be stretched thin, constantly juggling priorities.

Business savvy is a critical component of a CIO's makeup, he says. Know why your operation works and where your resources are and are not being deployed. Focus on projects to generate income and save money. Develop and maintain relationships with the other executives and be part of the circle of people making decisions for the company's future. "Throw a personality on top of that, and you have a good asset," he concludes. □

Fafard is branch manager of Montgomery West, a retained executive search firm in Torrance, Calif. She can be contacted at lfafard@montgomerywest.com.

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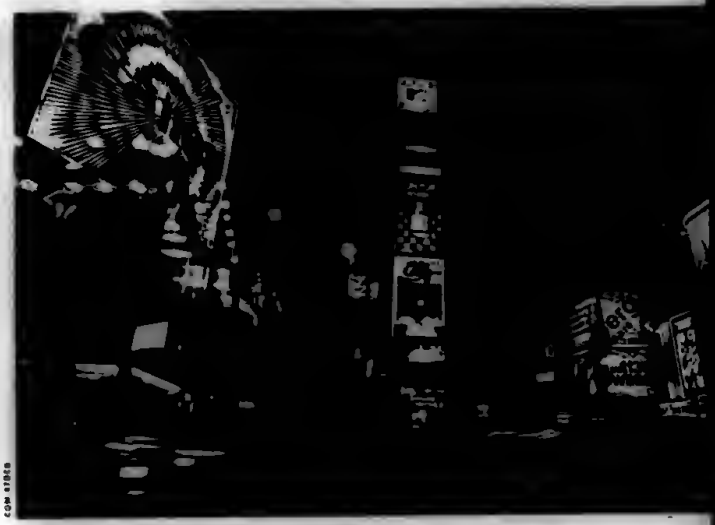

COM 01868

To get and keep an IT job here, you've got to step up to a fast-paced, high-energy work style

BY KIM FULCHER LINKINS

Recently, when I tried to stroll calmly into New York's World Trade Center, I experienced an amazing phenomenon: I couldn't.

I was caught in the crowd of people going in. And they weren't ambling, they were power walking. They had meetings to attend, deals to make, espressos to down — quickly.

This is the high-energy, in-your-face, no-time-for-the-likes-of-you New York. And its world of information technology is equally stressful, fast-paced and pressure-packed.

SUSANNAH YOUNG

"We and many companies in New York are very demanding of our people," says Robert Hedlund, director of technology services at Consolidated Edison Company of New York Inc. "Obviously, we have to work very hard to remain financially competitive with other companies. And yet, by the same token, I have to believe [from] what I have read that most companies are under tremendous pressure to produce more with fewer resources." IT, he says, is one of the "enablers" of that.

Who can thrive in such a hectic environment? Homegrown New Yorkers believe anybody can work in the city — as long as they can keep a healthy sense of humor. "If you can't accept that occasionally somebody will be irate at you, then you shouldn't be working in the city," says Jim Flock, vice president of IT infrastructure at Home Box Office, with a laugh.

As the song says, if you can make it there, you'll make it anywhere. But some experts say that for IT professionals to survive, they need to see themselves as cogs in the machine — the kinds of people who can do a particular job "and then just turn the page when they go on to their next assignment," says Matt Stall, a recruiter at Tan Check Consultants Inc. in Princeton, N.J. "[Most] people don't see full life cycles of a particular project. They go in for a specific segment of it and then move on to the next job where they're doing the same thing."

Nearby New Jersey offers the same fast-paced, high-pressure environment. "IT professionals have to have the necessary skills before they even walk in the door and be able to demonstrate them. . . . That saves [us both] the trouble of finding out they can't cut it when they get here," says Kirsten Rudolph, special projects coordinator at Visionics Corp., a biometrics company in Jersey City, N.J.

IT pros emphasize the importance of good interpersonal skills, namely the ability to deal with highly agitated people.

"Because most of the time, when people have computers, these are [the types of] people having problems," says Warren Brown, network and operations manager at Brown & Wood, a Manhattan law firm.

Some say it isn't where you're from, but what you know. "Certainly what we have seen with the recruiting we have done is that a lot of people who live outside of the New York area feel uncomfortable in a large city. It's just different from what they're used to," Hedlund says. "But I have to believe that if you have the skills to be successful in IT in Texas, then those are the same skills you need to be successful in New York."

So does New York truly welcome the huddled masses yearning to start anew? Consider James Hernandez (not his real name), who came to New York with little else but his skills, having lost almost everything in a hurricane in Puerto Rico. He interviewed with a recruiting company carrying most of his remaining possessions and money in a briefcase.

"He called me 20 minutes after he left and was pretty much crying," says Len Golod, head recruiter at Datacom Technology Group Inc. "His briefcase, with everything — his last few hundred dollars, his documents, his diplomas, his cover letters, his recommendation letters — was stolen on the subway."

This is the New York that the rest of the country believes exists

— ruthless, cutthroat, dangerous. Golod continues: "A week later, a good soul found [the briefcase]. The money was missing, but everything else was there. It had my business card in there, and they called me." Golod then located Hernandez.

New York's IT market is also no different from IT markets across the country. The skills most in demand are Java, C++, object-oriented coding, Unix, Windows NT, Web development and Web support, experts say.

Also in New York, as in other parts of the country, IT pros need to marry technical skills and personality. "The important thing is competency, commitment and character," says Allen Cytryn, CIO at Deloitte & Touche in New York.

Still, this is New York. "Be prepared to deal with angry users, and make sure you know your stuff," Brown warns. □

Linkins is a freelance writer in Sarasota, Fla.

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Respond to: Department 12819

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Respond to: Department 12724

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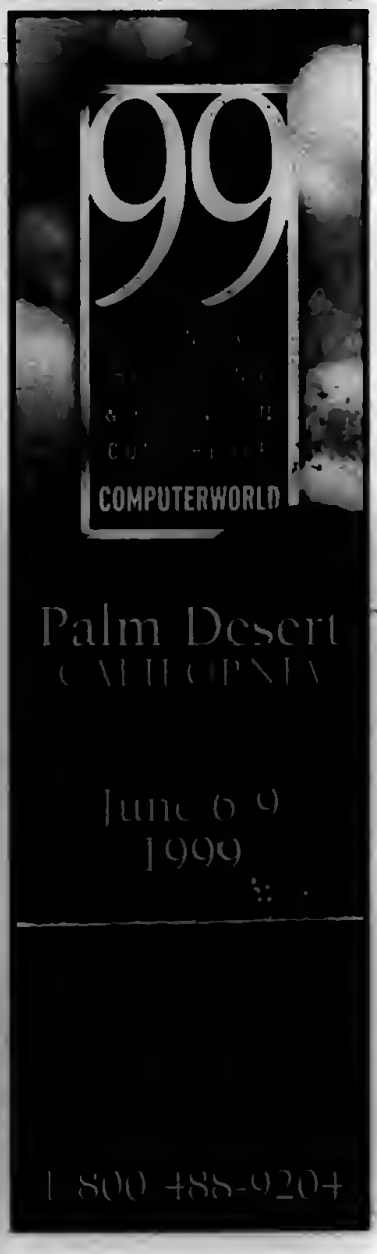

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■ DEPUTY DIRECTOR OF TECHNICAL SUPPORT SERVICES You will manage, plan, develop and control the Technical Support Services organization and its staff; provide user support; and promote user cooperation & satisfaction. We look to you optimize PC Support & Office Automation including installation, troubleshooting and upgrades; manage Help Desk including user inquiries/requests and meeting user needs; perform periodic desktop needs assessment to maximize Hardware & Asset Management, and provide PIMS (projects Information Management Systems) support on AS/400 technology, being converted to NT-based server technology. Position involves retaining external services to assist with installation, operation, or help desk support. To qualify, you must have a Bachelor's degree, 5 or more years of managerial experience in a support services organization, help desk or similar activity; and hands-on experience with PCs (Windows 95/NT) and software (Microsoft Office). Position requires strong communication skills and the ability to understand/respond to user concerns and issues. Experience with trouble-tracking software is desirable. **CODE: TSS**

■ MANAGER OF CORPORATE PROJECTS – Position is within the Infrastructure Projects & Technology Division and is partly responsible for the planning, implementation and support of enterprise-wide system applications, and must monitor and evaluate current and proposed systems and requirements. To be considered, a candidate must have at least three years experience in project management and large-scale, enterprise-wide systems analysis, business requirements assessment, and systems integration. Working knowledge of SAP, PeopleSoft, Baan, JDEdwards, Oracle, or similar large-scale systems is highly desirable as is familiarity with Client/Server technology. Must have Bachelor's degree or equivalent; graduate degree is desirable. **CODE: MCP**

■ MANAGER OF CLIENT SERVICES – Manager of Client Services is responsible for management of an Enterprise-wide Integrated Help Desk, a small computer services training function, and a documentation function coordinating work developed internally and by external firms. Manager must develop and implement procedures and services standards to support a "User oriented attitude" strategy. Position requires at least three years of managerial experience in a support services organization, including Help Desk, excellent verbal and communication skills and solid hands-on experience with personal computers (Windows 95/NT, Microsoft) is highly desirable. Working knowledge of automated Help Desk systems is a plus. Bachelor's degree or equivalent is required. **CODE: MCS**

■ MANAGER OF NETWORK & SERVERS – The Manager of Network & Servers has full operational responsibility for Wide Area Network management, and NT server management operated at the Technology Center on a 24x7x365 basis. Position is responsible to monitor and evaluate current WAN, LAN, and NT network server infrastructure and requirements. To qualify, candidate must have three or more years of hands-on experience with large-scale multi-node networks, NT server technology, TCP/IP, CISCO and related network technology, and three or more years of managerial experience in network management and NT server management. A working knowledge of Microsoft SMS System and Internet technology is highly desirable. A Bachelor's degree or equivalent is required; graduate degree is desirable. **CODE: MNS**

■ MANAGER OF INTERNAL PROJECTS – Reporting directly to Office of the Chief Information Officer, this position monitors and tracks all projects and tasks within Systems & Computer Services. The Manager of Internal Projects interacts extensively with technical staff and management. Candidates must have proven working experience with Microsoft Project, Microsoft Team Manager, or other project management software, and at least one year of paid work experience is monitoring and tracking project management activities. A college degree or equivalent and working knowledge of Windows NT and Microsoft Office Suite are also required. **CODE: IMP**

■ NT SYSTEMS ADMINISTRATOR – The NT Systems Administrator has full responsibility for day-to-day administration of a multiple domain Windows NT-based network providing enterprise-wide services from the Technology Center and related facilities on a 24x7x365 basis. Administrator will also develop and administer Windows NT TCP/IP protocols, and install and manage Remote Access Services (RAS), insuring integrated domain security and auditing. For consideration, candidates must have three or more years hands-on experience in an NT Server administration capacity, preferably in large network environment, troubleshooting experience is mandatory. Position requires solid knowledge of Microsoft NT networking environment, TCP/IP protocol suite configuration, and implementation of network clients. A college degree or equivalent is required. **CODE: NTSA**

■ NT SYSTEMS ANALYST – NT Systems Analyst is responsible for the administration and operation of server components of a multiple domain Window NT base providing enterprise-wide services from Technology Center and related facilities on a 24x7x365 basis. Also the NT Systems Analyst is responsible for administration and planning, installation and configuration of operations in NT environments including NT Workstations, NT Servers, MS-Exchange servers and MS-Mail servers. Qualified candidates must have two or more years of hands-on experience with NT Server, MS-Exchange and MS-Mail operations and troubleshooting, a good knowledge of Microsoft NT networking environment, TCP/IP protocol suite configuration. Working knowledge of Internet technologies is highly desirable. Bachelor's degree or equivalent is required. **CODE: NT**

■ SQL SERVER DATABASE ADMINISTRATOR – Administrator is responsible for the day-to-day administration of multiple SQL Server database operating in Windows NT servers, providing enterprise-wide services from Technology Center and related facilities on a 24 7 365 basis. Position is also responsible for Data Security Administration for production database in NT SQL Server domains and capacity planning. To qualify, a candidate must have a Bachelor's degree, and good verbal and written communication skills. Position requires three or more years hands-on experience with NT SQL database. Sybase database background would be acceptable. Relational database troubleshooting experience is mandatory. Solid knowledge of Microsoft NT networking environment is necessary, and Microsoft certification is desirable. Working knowledge of Internet technologies is highly desirable. **CODE: SQL**

■ SENIOR PROGRAMMER/ANALYST – Responsible for analysis, design, programming enhancement and maintenance of system applications using heavy on-line subfile and windows and structures processing utilizing DB/400 relational database concepts. This position requires a solid understanding of logical and physical files, message handling, journals, SDA, RLLU, DFU, SQL, PDM, Query 400 and PC support/Rumba. Qualified candidates must have a strong background in CL programming, with emphasis on OPNQRYF and OVRDBF commands, and ILE concepts. 5 or more years of experience in RPG/400 and/or COBOL/400. Experience is full system Life Cycle necessary. **CODE: SPA**

■ DATA MANAGEMENT ADMINISTRATOR – Support the data and analytical requirements for hardware systems and software applications in a newly established research department. Responsibilities include developing and modifying database and implementing applications for economic, financial, and policy-analytic research, troubleshooting in Windows NT Server and Unix environments. Experience being fully responsible for the maintenance and enhancement of PC network. Ability to provide training and technical support for PC/LAN and NT/MS Office Users. Requirements include 3-5 years systems, programming, and software applications experience and a B.S. in Computer Science or related degree. An advanced degree is preferred. Proficiency with Windows NT applications and maintenance and PC applications of econometric software packages such as SAS, Gauss, SPSS, RATS, Lindep, Stata. Experience with large databases, GIS and Internet applications is preferred. **CODE: DMA**

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Programmer Develops, maintains, and supports proprietary software which is installed in a client/server environment. Designs program logic, codes and documents programs for data access and transmission in a time series database. Determines data requirements of time series database and designs new modules and functions for such system. Consults with and assists users and develops appropriate database system modifications to fix and user problems. Performs all functions in a multi-platform environment. Writes codes to create graphs, tables, and analysis for proprietary software using principles of graphic user interfaces. Requires Master's degree in Computer Science, Management Information Systems, or Management Technology. Hours: 8:00a.m. - 5:00 p.m. 40 hours per week at $45,000.00 per year salary. Must have proof of legal authority to work permanently in the U.S. Please send two copies of resumes and cover letter to: Illinois Department of Employment Security, 401 S. State Street - 7 North, Chicago, IL 60605, Attention: Bart Grunnet, Reference #V-IL 20178-P. AN EMPLOYER - PAID AD NO CALLS. Equal Opportunity Employer.

Senior Consultant to design and develop client/server and integrated database applications for full range of business systems including conversion of multi-platform software applications from Legacy to relational systems utilizing UNIX, ORACLE and SQL Server, Visual Basic, and software and tools for data access involving legacy systems. Extensive travel required (up to 70%). Multiple openings. Requires M.S. or equivalent level degree in Computer Science, MIS, CIS, Engineering or closely related field, and six months experience in job offered or six months experience involving multi-platform software applications conversions from legacy to relational systems. Applicants must be able to perform job duties on date of application and must be presently eligible for permanent employment in the United States. Salary $65,000 - $77,000 per year depending upon qualifications plus bonus eligibility and benefits plan, 40 hour week plus overtime as needed without additional compensation. Send resumes to Allison Manley, Kehrs, Grant Thornton, LLP, 500 Washington Avenue, Suite 1200, St. Louis, Missouri 63101.

Software Developer and Web-based Administrator for a Software Development and Consulting company. Duties include: Installation and support of ORACLE (or other) databases and associated tools on DIGITAL UNIX, HP-UX, SUN-OS & WINDOWS. Must have experience of ORACLE, SQL and application development tools: SQL*FORMS, SQL*REPORT, EXPLAIN PLAN, SQL*TRACE, TKPROF, MONITOR, UTLBSTAT, UTLESTAT, AND SQL*TRACE, developing backup strategies, database recovery techniques, designing and implementing database applications, systems using SQL*Forms & ProC, automating tasks with UNIX shell scripts; performance tuning using SAR, VMSTAT, UTLBSTAT, UTLESTAT, DBA VIEWS, etc. Experience working with databases on various platforms, determining system and memory requirements, developing scripts to disseminate available space, implementing new databases, and for start up and shut down. Requires a Master's Degree in Electrical Engineering, Computer Engineering, Computer Science, or MIS. Requires three years experience in the job offered or three years experience as a Software Engineer, to include experience in database development and administration, particularly in ORACLE RDBMS, analysis and design and application development using ORACLE tools, SQL*Plus, SQL*Forms 3.0, SQL*Reports and SQL*Loader. Salary is $60,000.00 per year. Hours are 8:00 am to 5:00 pm, forty per week. Send resumes to: 7310 Woodward Avenue, 4th Floor, Detroit, MI 48202. Ref. #9109197 Employer paid ad.

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SENIOR SOFTWARE DEVELOPER/ ENGINEER

MS in CS with 3 years experience in job or 3 years experience as either a Systems Analyst and/or Programmer, including 3 years experience in C++ and OMT Method, and 6 months experience in Windows NT, required. Full lifecycle object-oriented software development experience including analysis/design/documentation/development and testing and proof of legal authority to work permanently in the US. 40 hours/week; 9-5, $60K/year. Please mail resume to: Il. Dept. of Employment Sec., ATTN: S. Lindsey, Ref. #V-IL 19029-L, 401 S. State Street, 7 N., Chicago, IL 60605. An employer-paid ad. NO CALLS. SEND 2 COPIES OF BOTH RESUME AND COVER LETTER.

Alta Software, Inc.

Programmer Analyst - Central, KY - Design, and & implement software applications using COBOL for any RDBMS. Enhance & debug existing systems & programs. Bach in Comp. Sci., Math or Engineering & 1 yr exp. M-F, 8AM-5PM, 40 hrs/wk, $45,000/yr. Send resume to: Ginny Burton, Dept. for Employment Services, 275 East Main St., 2W, Frankfort, KY 40621. Applicants must refer to JO# 399882. Only persons with authorization to work permanently in the US need to apply. Equal Opportunity Employer

Network Administrator wanted by Computer Services Co. in Bristol, PA. Must have 1 yr exp installing & configuring interface boards, file servers & work stations incl LANs, WANs & personal computers and configuring, performing operations tests, maintenance testing, s/ware installation, troubleshooting and providing technical support for Win, Win 95, Win NT, Novell & UNIX e distributed computing envmnt. Respond to: HR Dept. Next Generation Technology, Inc, 121 Pond St, Bristol, PA 19007

Chief Interactive Programmer needed by Int'l Direct Mktg Co. in New York City. Must have 2 yrs exp creating Web Site Home Pages using HTML, JavaScript & Shockwave. Bachelors in Comp Sci or Comp Graphics required. Respond to: HR Dept. LIOI, OgilvyOne Worldwide, 309 West 49th St, NY, NY 10019.

Programmer/Analyst wanted by Industrial Automation & Process Control Co. in Cranberry Township, PA., to provide customized s/ware design, testing, support, implmtn & coding for business operations & building web-developed applics using Visual Basic, SQL, Data Access Tools, C/C++, Win NT & VAX/VMS. Must have BS in Comp Sci. Respond to: HR Dept. Eclectic System Architectures, Inc, 315 Thomson Park Drive, Cranberry Township, PA 16066.

Software Engineer - Overland Park, KS for Software project technical management and development. Coordinate Unit testing, System Testing, Integration Testing in various environments with DOS/OS2, C, XDB and MFCICS. Port system to ES9000 Mainframe environment with C, DB2 and CICS. Design of man-hours, product in Project Management. Act as a consultant on Data Migration from MVS/ESA to SQL Windows client Server Environment. M-F, 8:00 am - 5:00 pm. 40 hrs./wk. $64,000/annum. Require MS in Computer Science or equivalent education and 3 years' experience in the job offered or 3 years' experience as a Programmer Analyst, Software Consultant, Developer or equivalent industries assignment. Experience must include developing testing methodology and work with C and IBM mainframe (CICS, DB2 and VSAM). Up to 100% (employer paid) travel within U.S. possible. Please apply with a resume in person to the local Kansas Job Service Career Center or send resume to: KS Department of Human Resources, #KS1411768, Attn: Jane Burbridge, 401 SW Topeka Blvd., Topeka, Kansas 66603-3182. "Applicants must have proof of legal authority to work in the United States."

Software Consultant - SAP [LO.N. GA 6308159] Consult with clients to define their data processing computer systems needs including SAP administration needs; analyze client's current procedures, and sem SAP and ABAP/4. Reqs. a Master's Degree (or its equivalent e educ. and exp.) in Comp. Sci., Systems Analysis, Computer Information Systems, Computer Engineering, Electronics, Electrical Engineering or Math, plus sem yr's exp. in the job offered. Will accept a Bachelor's degree, or a foreign equivalent degree, followed by at least 5 yrs. of progressive exp in the computer software specialty in lieu of the required educ. and exp. 40 hrs/wk, 8a-5p, $70,000.00/yr. Send resume along with the reference number to: Georgia Department of Labor, Job Order # GA 6308159, 2943 N. Druid Hills Rd., Atlanta, GA 30329 or the nearest Department of Labor Field Service Office.

Project Manager wanted F/T by Computer consulting & Software dvlpmt Co. in Burlington, MA. Must have 5 yrs exp e job ctl'd or 5 yrs exp as Prgmr Analyst. Head the planning, development & implementing phases of projects & upgrade & maintain the company operations & servers to ISO 9000 standards. Bach in Comp Sci or Elec. Engg required (will accept Masters & 3yrs exp e job or 3yrs as Prgmr Analyst) Respond by resume to: HR Dept, Software Experts, Inc, 83 Second Ave, Burlington, MA 01803.

Software Engineer wanted by Computer Services Co. in Edison, NJ. Must have 1 yr exp analyzing, dsgng & dvlpg comp. s/ware using object oriented methodologies, object modeling methodologies & object modeling w/MS Visual C++ & MFC in Win 95 & Win NT environ w/ORACLE. Master's degree in Comp Sci, Comp Engg or Elec. Engg. Respond to: HR Dept, Horizon Computers, Inc, 5 Lincoln Hwy, Edison, NJ 08820.

Systems Analyst needed F/T by Computer Services Co. in Fairfax, VA. Must have 1 yr experience analyzing user reqmts, and in dvlpmt of systems incl internet prgmg using C++, cgi & HTML in UNIX environ. Bachelors e Bus. Admin, MIS or Comp Sci required. Respond to: HR Dept, Masse Technology, Inc, 3957 Fair Ridge Dr, Ste 100N, Fairfax, VA 22033.

Technical Lead Software Engineer Needed in Herndon, VA for NJ IT Co. Must have experience with Object Oriented Design/ Analysis, UNIX, and C++ Apply to Global Consultants Inc, 601 Jefferson Road, Parsippany, NJ 07054.

Predictive Systems, Inc., a network technology firm, is looking for Systems Engineers to work out of our NJ office as consultants in Enterprise Network Management. Systems Engineers will research, design, develop, test and implement system level software. Must hold a Master's Degree in Computer Science, 2+ years experience a systems administration or development and have knowledge of C/C++, Visual Basic and UNIX. Please send resumes to Predictive Systems, Inc. 145 Hudson St., 6th Fl., NY, NY 10013.

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Systems Analyst - New Castle, DE - Analyze requirements, design, code & test info mgt sys using COBOL, PowerBuilder & JCL. Req. Bach in Com. Sci., Math or Engr & 1 yr exp. M-F, 8AM-5PM, 40hrs/wk, $58,000/yr. Send resume to: Attn: Olga M. Hungria, Delaware Dept. of Labor, Div. of Employment & Training, 4425 North Market St., PO Box 9828, Wilmington, DE 19809-0828, JO# DE2000466

SW Engineer investigate, anal, design & dev OO distributed s/w on heterogeneous platforms for open systems on Unix/Win OS, Ind UI's, API's & other modules. Manage code dev. Conduct cross platform dev on Unix/Win. Debug and test s/w. M.S. Comp Sci +2 yr exp s/w eng or progrmr/anlyst (1 yr of which involves design & dev of distributed s/w using C, C++, Perl , Win NT, Solaris, CleanCase, Parts Bench, Quantify, IPC, Sockets, RPC, XDR, SCCS, PerlCm), $76,000/yr. 2 Resumes to Job Order 000-681, PO Box 959, Concord, NH 03302-0959

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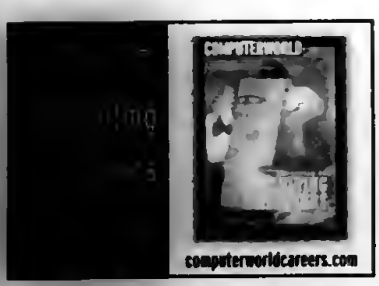

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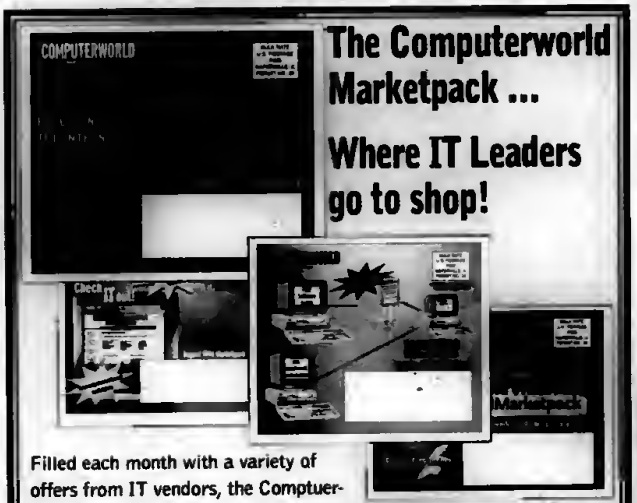

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Dell Computer (H)	3.44
Checkfree Software	3.38

Losers

PERCENT

Compuware Corp.	-20.7
Network Appliance Inc.	-21.7
Parametric Technology Corp.	-22.2
Apple Computer Inc.	-23.2
Micron Technology Inc.	-24.2
Informix Corp.	-25.2
Novell Inc.	-28.5
Network Solutions Inc.	-34.6
Checkpoint Software	-41.2

DOLLAR

Amgen Corp.	-$3.81
Yahoo! Inc.	-$3.44
Micron Corp.	-$3.00
Lycos Inc.	-$2.44
Compuware 2000 Inc.	-$2.06
Novell Inc.	-$1.94
Informix Corp.	-$1.88
Intel Corp.	-$1.75
Cabletron Systems	-$1.38

INDUSTRY ALMANAC

A big yahoo for AOL

America Online Inc.'s (NYSE:AOL) acquisition of Netscape Communications Corp. late last month will give AOL exposure to many more business Web surfers, which ultimately should give AOL's stock a boost.

One of the biggest gains for AOL in the $4.2 billion deal is Netscape's Netcenter, an Internet portal that's tightly linked to Netscape's browser. It gives business users an alternative to portal Web sites such as Yahoo.

Many Internet service companies are measured by the number of hits their Web sites get. Now that AOL has Netcenter — which reportedly had 12 million business visitors in September alone — AOL's stock should reap the benefits.

"This is great move for AOL," says Mark Cavallone, an analyst at S&P Equity Group in New York. "It is going to give [AOL] more of a presence in the daytime world, with business users."

Others agree that AOL saw a great opportunity with Netcenter and grabbed it.

"Even though the majority of [Netscape's] business was enterprise software, they were really growing the Netcenter portal business at a much more rapid rate. And it was becoming clear that was going to become the new emphasis of the company," says Peggy Ladvina, an equity research analyst at Dain Rauscher Wessels in Minneapolis.

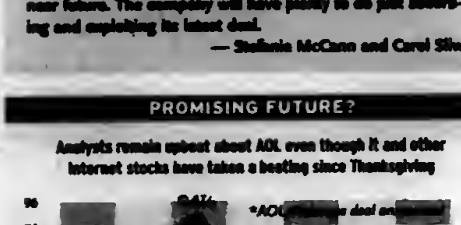
Making the deal even sweeter for AOL, Ladvina says, is that it will give AOL the largest audience reach and attract more advertisers to the Dulles, Va.-based company.

AOL isn't expected to make any more acquisitions in the near future. The company will have plenty to do just absorbing and exploiting its latest deal.

— Stefanie McCann and Carol Silva

PROMISING FUTURE?

Analysts remain upbeat about AOL even though it and other Internet stocks have taken a beating since Thanksgiving



Exch	52 Week	Range		Dec. 4 2pm	We Net change	We Pct change
NASDAQ						
ADBE	51.87	25.87	Adobe Systems Inc	44.50	-0.44	-2.1
AEPH	56.87	8.12	Aspen Technology Inc.	11.56	-2.75	19.2
AOSE	54.00	21.43	Autodesk Inc.	41.75	6.25	17.6
AVID	69.75	11.00	Avid Technology	21.75	1.50	5.9
BOOL	34.87	16.00	Books a Barnes & Noble Inc. (H)	25.75	1.63	5.2
CDN	59.00	19.13	Cadence Design Systems	40.44	1.50	4.9
CBTSY	43.87	8.00	CBT Group Plc	9.50	0.50	-4.8
CHKPF	66.37	10.83	Checkpoint Software	35.56	3.81	77.8
CTXS	90.75	58.37	Citrix Systems Inc. (H)	81.00	3.25	3.8
COGNF	58.50	14.19	Cognos Inc	20.00	-0.00	-0.1
CA	91.93	58.06	Computer Associates	64.00	0.00	0.0
CPWR	66.75	27.62	Compuware Corp (H)	62.50	1.06	-2.3
DCTM	88.62	16.75	Documentum	61.75	-2.13	-4.8
EFII	47.75	12.87	Electronics For Imaging	28.38	0.13	0.4
MNCS	43.12	25.00	Mac Software	37.50	4.75	14.5
IDNC	55.75	28.37	IDX Systems	39.00	-1.44	3.5
INFM	10.43	3.50	Informix Software Inc	7.56	1.91	33.7
INTU	97.93	36.25	Intuit	60.19	2.19	3.8
JINV	69.00	24.75	Jack Henry And	52.25	-0.13	-0.2
LCTO	58.18	16.00	Locate Systems Inc.	18.19	1.00	2.0
MACR	19.12	7.12	Macromedia Inc. (H)	27.28	0.53	2.0
MANU	66.37	6.12	Manugistics Group Inc	15.25	2.63	27.5
MENT	11.81	5.43	Mentor Graphics	9.06	0.44	5.1
MSFT	130.25	50.00	Microsoft Corp (H)	125.44	2.13	1.1
NETA	56.87	15.00	Network Associates	31.00	1.19	6.1
GANN	97.87	50.37	Network General	80.06	1.00	2.0
NOVL	18.87	8.81	Novell Inc. (H)	11.81	-0.50	2.1
ORCL	31.00	17.75	Oracle Corp	26.00	1.19	3.4
PMTC	58.31	8.50	Parametric Technology Corp	13.25	-2.13	12.2
PSFT	57.43	18.37	Peoplesoft Inc.	19.69	1.25	6.8
PIXR	66.00	19.00	Pixar	42.25	3.00	11.3
PLAT	34.31	9.00	Platinum Technology Inc	19.00	2.88	16.9
RATL	21.06	9.00	Rational Software Corp	23.63	0.75	3.3
SAP	40.12	29.68	SAP AG	41.06	1.38	-3.2
SCUR	22.25	6.37	Secure Computing Corp (H)	20.27	0.00	0.0
SI	30.25	20.12	Sterling Commerce Inc.	20.88	0.31	0.9
SSW	32.81	17.75	Sterling Software Inc	25.69	-0.88	-2.8
SDRC	29.00	9.50	Structural Dynamics Research	11.00	-0.06	-3.9
SYBS	15.12	4.50	Sybase Inc	7.13	0.78	12.1
SYMC	52.62	9.62	Symantec Corp	20.25	-0.34	-1.7
SNPS	52.37	24.50	Synopsys (H)	48.88	-0.31	-0.6
SCTC	50.87	8.50	Systems & Computer Technology	20.38	1.44	7.6
BANKF	19.50	9.50	The Bank Co. NV	11.88	-0.31	2.6
VNTV	88.75	5.00	The Ventive Corp	8.00	-0.81	-0.2
TSAI	42.06	27.00	Triana Sys. Arch	33.44	1.56	-4.0
VRTS	80.00	27.75	Veritas Software Corp (H)	40.00	1.88	2.1
WIND	51.62	28.00	Wind River Systems Inc	43.69	3.31	7.0
NYSE						
ATI	49.43	37.37	Ameritech Communications	58.44	2.06	3.6
AT	56.00	30.25	Alltel Corp (H)	53.69	-0.50	1.0
AIT	57.56	37.81	Ameritech Corp (H)	56.81	-0.44	-0.8
ANDW	59.87	56.12	Andrew Corp	56.75	-0.19	1.1
T	68.30	48.37	AT&T	61.19	-0.19	-0.1
BCE	46.62	25.62	BCE, Inc	35.00	1.00	-2.8
BEL	58.87	40.43	Bell Atlantic (H)	56.31	-2.27	3.8
BLS	66.43	53.75	Bell South (H)	60.00	0.44	1.1
CSN	58.62	28.87	Cincinnati Bell Inc.	31.75	-0.68	1.2
CMCSK	52.75	27.56	Comcast (H)	52.75	3.50	7.1
CQ	42.75	31.62	Comsat Corp	40.50	-0.31	-0.8
COX	69.50	53.00	Cox Communications Inc	56.87	0.19	0.3
CSTBY	31.12	8.51	Globalstar Telecom Ltd.	18.44	2.94	18.9
GTE	80.00	60.50	GTE Corp (H)	64.44	0.44	0.7
NETL	34.12	11.31	Nextel Communications	22.88	0.50	1.7
NPOT	86.12	66.50	Pacificorp	35.25	-0.00	1.4
QCOM	88.62	33.75	Qualcomm	54.00	-0.75	-1.4
SBC	51.00	50.75	SBC Communications (H)	49.88	-0.56	1.0
FON	77.93	48.25	Sprint Corp (H)	77.06	5.25	4.4
TCOMA	44.50	23.19	Tele-Communications	42.06	-0.25	-0.6
TDS	54.12	30.62	Telephone And Data Systems	42.75	0.75	1.8
USW	64.06	43.37	US West (H)	63.00	-0.19	-0.3
VIA	69.11	38.87	Viacom	64.62	3.13	-4.6
WCII	49.12	30.25	Winstar Communications Inc	49.00	0.00	1.1
WCOM	62.93	48.50	Worldcom Inc (H)	61.06	0.00	0.8
AMEX						
ACXM	28.25	15.27	Acxiom Corp	23.06	1.00	4.0
ACS	40.31	21.50	Affiliated Computer Servs (H)	40.31	1.00	4.4
AMSY	34.00	10.75	American Mgt Systems	27.25	2.56	8.8
AUD	64.31	44.06	Automatic Data Processing	76.88	-0.75	-1.0
BSYS	50.25	31.00	Bisys Group Inc	44.38	0.00	0.0
CATP	58.37	11.37	Cambridge Technology Ptnrs	19.44	0.00	3.6
CEN	48.50	43.06	Ceridian (H)	45.50	2.19	5.5
CIBR	80.87	13.31	Ciber Inc	23.31	1.00	4.5
COCO	29.25	12.43	Comptoco	11.44	1.18	7.3
CHRZ	53.50	11.27	Computer Horizons Corp	21.00	-2.75	11.9
CSC	74.81	57.50	Computer Sciences	60.25	4.43	8.5
DST	70.50	34.06	Dst Systems Inc	54.50	0.50	-0.7
EDS	50.87	38.41	Electronic Data Systems	39.44	1.00	-2.5
FDC	36.00	19.00	First Data Group	27.63	-0.25	-0.9
FISV	89.37	28.37	Fiserv	46.25	0.37	0.7
SII	43.75	31.31	Gartner Group	20.88	5.00	13.0
HBOC	38.37	20.56	HBO & Co.	24.31	-0.50	1.5
IEA	46.50	24.75	Keane	28.44	1.00	3.3
NDC	66.00	26.50	National Data	58.50	0.75	2.0
PAYX	55.06	26.75	Paychex Inc	49.00	-2.75	5.2
RECO	21.75	6.62	Renaissance Worldwide	7.63	0.44	6.7
REY	24.00	12.00	Reynolds & Reynolds	21.00	0.31	1.5
SFE	49.37	17.12	Safeguard Scientifics	26.19	-0.25	-0.9
SAPE	43.00	24.25	Sapient Corp	45.75	1.25	-2.7
SMS	48.50	48.00	Shared Medical Systems	52.44	0.13	0.2
SDS	40.00	21.06	Sungard Data Systems	44.06	1.94	0.0
SYNT	32.62	0.68	Synetic Inc.	20.25	-0.00	1.7
TECD	53.12	31.75	Tech Data	40.81	-2.38	-5.5
TSS	23.93	14.43	Total Systems Services, Inc.	22.13	-0.25	-1.1
TSAI	43.00	27.00	Transaction Sys. Architects	37.44	1.06	-4.0
OTHER						
COMS	43.75	27.00	3Com Corp (H)	42.63	2.75	6.8
ADCT	43.62	15.75	ADC Telecommunications Inc.	27.94	-0.00	-0.0
ANTC	25.00	10.57	Antec	16.50	-1.31	7.8
ASND	59.62	22.00	Ascend Communications Inc. (H)	37.13	-0.00	1.5
BNYH	13.37	2.12	Bay Networks Inc	8.97	1.19	14.2
CS	17.12	6.62	Cabletron Systems	8.88	-5.38	-37.7
CNFR	28.00	2.75	Cabletron Systems Inc	1.63	5.25	18.6
CSCO	88.37	31.00	Cisco Systems Inc (H)	77.81	0.94	1.2
ECIL	18.68	10.75	ECI Telecom	17.44	1.00	10.5
FORE	28.00	9.25	Fore Systems Inc	17.56	1.75	11.1
HRS	53.31	27.00	Harris Corp	37.56	-0.63	-1.8
GMH	57.87	30.37	Hughes Electronics/GM	40.00	1.00	2.8
ERICY	44.00	11.06	LM Ericsson	27.31	0.31	1.2
LU	108.00	30.18	Lucent Technologies	94.00	6.44	8.8
MANGF	7.25	1.75	Mangle Networks	4.81	-0.08	-1.5
NCDI	32.75	4.37	Network Computing Dev	6.50	-0.50	-7.1
NSBE	20.62	8.00	Network Equipment Tech	11.31	-0.00	-0.5
NN	44.50	15.43	Newbridge Networks	29.31	0.25	0.9
NORA	107.00	31.62	Nokia Corp (H)	107.00	8.50	9.0
NT	50.25	26.81	Northern Telecom Ltd	46.75	1.06	-2.1
PAIR	24.37	6.00	Paircom Technologies Inc.	7.00	1.25	21.7
PCTL	11.93	4.75	Picturetel	6.75	0.19	2.9
SFA	21.93	11.75	Scientific Atlanta	20.25	1.50	21.2
SPNA	14.37	2.75	Spanl	3.75	0.06	0.0
TLAB	93.12	31.37	Tellabs Inc.	57.06	0.88	1.5
USW	64.00	42.37	US West (H)	53.06	10.19	-0.5
VRLK	11.18	2.87	Verilink	4.00	0.88	12.7
WSTL	16.62	2.75	Westell Technology Inc.	5.00	0.00	1.3
XYLN	31.31	9.62	Xylan	19.88	1.44	7.8
NASDAQ						
ADPT	49.12	7.63	Adaptec	16.81	-0.19	-1.1
AMD	31.12	9.31	Advanced Micro Devices (H)	20.44	1.44	8.7
ALTR	56.75	28.25	Altera (H)	55.25	4.50	8.9
ADI	39.62	12.00	Analog Devices	48.00	6.19	28.4
AMAT	45.87	21.56	Applied Materials (H)	42.88	2.44	6.0
ASMLF	49.00	12.93	ASM Lithography Holding	31.50	1.81	6.1
MRS	55.31	23.06	Marvell Corp	37.50	-0.63	7.6
INTC	113.12	65.06	Intel Corp (H)	114.19	4.00	3.1
KLAC	48.00	20.75	Kla Instruments	41.56	4.06	10.6
LLTC	82.62	39.12	Linear Technology (H)	78.13	6.69	9.4
LSI	19.37	10.06	LSI Logic	19.13	2.63	15.9
MXIM	45.60	22.31	Maxim Integrated Products (H)	42.44	1.56	3.8
MU	49.00	20.00	Micron Technology (H)	47.81	2.00	6.0
MOT	62.87	38.37	Motorola	51.70	-0.09	-1.1
NSM	30.93	7.43	National Semiconductor	16.06	5.25	15.4
STM	91.75	35.87	Sgs-Thomson Microelectronics	72.63	1.63	8.4
SLR	70.81	48.87	Solectron Corp (H)	60.66	2.00	2.9
TER	48.43	15.00	Teradyne	39.31	4.25	12.1
TXN	83.62	39.62	Texas Instruments (H)	60.13	2.13	3.7
UNPH	69.75	31.25	Uniphase (H)	60.13	5.44	9.9
VTSS	46.37	15.81	Vitesse Semiconductor Corp (H)	41.06	4.00	10.8
XLNX	81.25	29.75	Xilinx (H)	58.63	1.00	1.8
OTHER						
AAPL	49.75	12.75	Apple Computer Inc.	32.88	-2.56	2.2
ASPX	11.50	1.63	Aspect Systems	3.44	-0.50	12.7
CPQ	58.68	22.50	Compaq	48.13	2.56	10.3
DGN	21.81	3.00	Data General (H)	20.63	2.38	13.0
DELL	75.06	18.81	Dell Computer Corp	65.38	3.81	21.4
CTW	68.75	40.62	Gateway 2000 Inc.	52.87	6.88	14.9
HWP	82.31	47.00	Hewlett Packard Co.	63.00	1.88	2.1
HIT	64.66	40.18	Hitachi Ltd.	51.00	1.56	2.5
IBM	170.56	95.62	IBM (H)	162.87	1.44	-0.9
MUEI	24.75	0.81	Micron	20.69	-2.75	11.7
MOT	58.87	48.37	Motorola	57.19	-2.00	1.1
NATI	36.50	11.00	National Instruments Corp	29.13	-0.50	3.0
NCR	58.50	25.50	NCR (H)	48.75	2.31	6.3
NHPW	81.31	51.06	NEC	62.75	-0.75	1.7
PRCM	16.50	3.50	Procom Tech Inc	12.19	0.50	4.8
SQNT	25.00	5.06	Sequent Computer Systems	12.19	-0.44	3.5
SGI	16.50	7.37	Silicon Graphs	12.81	-0.19	1.4
SNE	97.18	60.25	Sony	74.56	-0.75	1.0
SUNW	82.50	44.62	Sun Microsystems (H)	74.38	-0.38	-0.5
TEXN	5.32	2.00	Texas Micro	3.44	0.00	1.9
TRCD	3.56	0.37	Tricord Systems	0.66	-0.00	12.5
UIS	10.81	11.88	Unisys	30.81	2.25	7.9
OTHER						
AMZN	233.12	24.87	Amazon Com	186.06	122.13	10.8
AOL	68.25	19.37	America Online (H)	85.31	-6.44	2.3
ATWW	68.25	7.75	Artemis Corp	55.31	10.50	16.2
CKFR	31.06	3.75	Checkfree	19.81	2.31	14.9
CHKPF	68.13	30.62	Checkpoint Software	35.50	5.06	17.8
CTCM	27.75	5.87	Cybermedia, Inc	14.69	1.56	-9.6
EDFY	20.87	4.62	Edify Corp	9.19	1.19	17.9
ECRP	35.25	10.00	E Stamp Group Inc	23.88	1.69	13.4
XCIT	57.25	10.81	Excite, Inc	40.00	0.00	1.0
SEEK	45.00	7.75	Infoseek	33.44	0.81	2.5
LCOS	88.75	34.50	Lycos, Inc.	52.50	-9.44	-15.2
NSCP	45.25	14.87	Netscape Communications	36.25	-3.69	-9.2
OMKT	59.12	6.25	Open Market Inc.	10.50	-0.56	-7.4
OTEST	23.50	9.81	Open Text Corp	19.00	0.50	2.7
PSIX	21.93	4.25	Psinet	18.25	-0.75	-3.9
QOEX	5.00	0.25	Quarterdeck Corp	0.50	-0.01	-1.8
SDTI	42.75	5.43	Security Dynamics	25.81	2.44	18.2
SPYC	32.25	4.01	Spyglass Inc. (H)	20.88	-1.31	-0.9
YHOO	237.75	25.06	Yahoo! Inc	184.81	-21.44	10.4
NASDAQ						
ADPT	49.12	7.87	Adaptec Inc	16.81	-0.19	1.1
APCC	80.25	22.12	American Power Conversion	40.25	-2.75	-6.4
CANNY	25.87	17.00	Canon Inc	22.19	0.06	0.3
DBD	55.31	19.12	Diebold Inc.	44.00	-1.38	5.8
EK	68.06	53.31	Eastman Kodak Co	75.06	-2.06	-2.7
EMC	80.50	23.00	EMC (H)	58.44	5.19	7.1
IOM	16.31	2.93	Iomega	3.44	0.50	0.0
LHX	82.00	30.56	Lernout International (H)	72.25	1.00	1.7
QNTM	27.46	10.81	Quantum	22.44	0.75	8.5
SEG	34.50	56.12	Seagate Technology (H)	31.50	-8.69	2.2
STK	51.12	30.12	Storage Technology	28.88	2.31	6.3
TER	68.18	13.68	Tertronix	25.69	1.38	5.7
XRX	176.50	88.18	Xerox	108.87	2.44	-2.2

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Boeing layoffs skip IT

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technologies and processes and are realizing that it doesn't cut the mustard anymore," said Bill Fiala, an aerospace analyst at Edward Jones & Co. in St. Louis. "It would surprise me if they did anything to cut their IT organization at this stage."

The IT initiatives are "a very important part of the company's plan to reduce manufacturing cost . . . and many are still in the process of being implemented," said Keith Patriquin, an aerospace analyst at Boston-based Loomis Sayles & Co.

Some of the other IT initiatives under way at Boeing include standardizing desktop hardware, upgrading workstation technology used in aircraft design, centralizing the help desk operation and revamping a variety of administrative human resources and facilities management processes.

As a sales slowdown forces cutbacks and layoffs at Boeing, IT is expected to escape the hatchet

Boeing said last week that it will lay off 20,000 employees — on top of the 28,000 job cuts announced in July — by the end of 2000.

ECONOMIC TRIGGERS

The latest cuts are the result of slumping sales and deferred commercial orders triggered by the economic turmoil in Asia, said spokesman Bob Jorgensen. Boeing expects most of the cuts to come from contract labor and manufacturing posts. "It would be shortsighted of us to reduce IT staff when they are working on so many important projects," he said.

That's especially true in the commercial aircraft division, where Boeing's Define and Control Airplane Configuration/Manufacturing Resource Management project is overhauling manufacturing processes. Rather than treating each aircraft order as a customized project, Boeing is devising a way to quickly assemble planes by reusing common feature sets wherever possible. Accomplishing that goal has meant consolidating more than 400 systems so that, eventually, 60,000 employees will be accessing only one information source on the processes and parts involved in building a plane.

Implementation of the latest phase of the project already has been pushed back once — from November of this year to March 1999 — because the company didn't want to risk a new project during the busiest period in Boeing's history, said Cristina McHugh, a spokeswoman for the commercial aircraft group. Boeing will build 500 planes this year and 620 planes in 1999, fulfilling previous orders, Fiala said.

Boeing can ill-afford to delay the project again because the problem of having "hundreds and hundreds" of financial, manufacturing and production applications that currently don't interoperate well "is becoming more acute," said Josh Greenbaum, a principal at Enterprise Applications Consulting in Berkeley, Calif.

Despite Boeing's heavy emphasis on IT projects to pull it out of its slump, Greenbaum said he believes that forecasting tools would have made only a minor impact on Boeing's ability to identify weak market conditions in Asia before the market went sour.

"Boeing got hit with a real double whammy," Greenbaum said, citing its steep price competition with European aircraft maker Airbus Industrie and how it "followed the herd" of big banks that were placing significant investments in areas such as Indonesia. □

Delta

CONTINUED FROM PAGE 1

gives away the last standby seat. Previously, agents had to search for that information by entering cryptic codes.

Delta's success also could prove important to other large information technology customers. It shows how off-the-shelf, message-oriented middleware can replace the expensive, unwieldy code customers have used to link older applications.

Although many companies use messaging middleware in high-volume environments like Delta's, the airline is among the first to use it to improve the business by connecting applications that couldn't talk to one another before, said Roy Schulte, an analyst at Gartner Group Inc. in Stamford, Conn.

"It really is going across separate application systems," Schulte said. "It's not just [communicating] within a single, big distributed application."

"We've been in the messaging business for eight to 10 years," said Whitney, a principal at Delta Technology Inc., the IT subsidiary of Delta Air Lines in Atlanta. Like many large IT organizations, "we would rather buy something off the shelf" than devote staff to maintaining Delta's proprietary middleware.

For Delta, that "something" was IBM's MQSeries. Like other messaging middleware, MQSeries allows applications on different platforms to send messages to one another through queues. That puts less strain on the network and the applications than continuous, one-to-one links whenever two systems need to exchange data.

However, messaging has had a reputation for being "very reliable but very slow," said Colin Osborne, worldwide business executive for MQSeries at IBM's Hursley, England, laboratory.

That makes it a challenging choice for Delta's new Gate and Boarding System, which has run at Jacksonville International Airport in Florida since September. The new system uses MQSeries to help push real-time information to gate agents from older, operational systems. Those older systems generate 1,000 messages per second, with a guaranteed response time of a seconds.

But in late October, less than a month before the Thanksgiving travel rush, which would tax the systems most, Delta found a bug that could cause MQSeries to lose messages when its queues holding outbound messages filled up, Whitney said. Instead of telling the sending application to stop transmitting, he explained, MQSeries would sometimes delete all the messages in the full queue.

It took days of around-the-clock work — and some tug-of-war between Delta and IBM — before the bug was fixed (see story below). Delta didn't get the fix in time to safely install it before Thanksgiving, but fortunately, the message loads during the holiday weren't enough to trigger problems. The fix has since been put into production.

Starting next year, Whitney said, he hopes to use MQSeries as a key component of a companywide information-sharing architecture, passing messages among core operational systems without bogging them down with message management.

To isolate operational systems from the complexities of messaging, Whitney said he plans to use dedicated messaging controllers that Delta is co-developing with Inrange Technologies Corp. in Shelton, Conn. The controllers will route messages and translate them into the formats required by systems at Delta and its business partners.

Schulte predicted that many other firms will follow Delta's lead, using MQSeries and other messaging middleware to link applications in new ways to improve customer service, cut costs and increase profits.

"The lesson here is not that you improve the efficiency of your IS department," Schulte said. "You can see a tangible change, and your customers can see a tangible change in the way your company works, if you do it right."

Several veteran MQSeries customers said they liked the idea of such dedicated controllers but wanted to see details before committing to it.

Ken Krueger, a senior manager at MCI WorldCom Inc. in Colorado Springs, said he has no doubt MQSeries can work in mission-critical systems such as Delta's. MCI uses the IBM product together with its own middleware in a customer service system "which provides sub-second response time."

However, middleware vendors are "offering tons and tons of features and services . . . while trying to get market share," Krueger said. "We're looking for [products] that solve specific problems, that can be 'componentized' into our existing infrastructure." □

There's a time to get tough

When a software bug threatens your business, don't be afraid to get a little forceful with your vendor.

That's the lesson Mark Whitney and his colleagues at Delta Technology learned when a bug in IBM's MQSeries middleware threatened the integrity of a new passenger boarding system.

When they first found the bug at the end of October, "we were trying to be a good customer," said Whitney, a principal at Delta Technology in Atlanta, the IT subsidiary of Delta Air Lines. That meant using IBM's normal problem-reporting channels rather than "going in kicking and screaming," said Larry Lockett, manager of middleware services.

Delta Technology staffers also thought there might be a problem with their own system configuration, especially because the bug was in a new and unfamiliar version of MQSeries.

But by the end of the first week in November, IBM's MQSeries lab in Hursley, England, still hadn't found a fix.

With the Thanksgiving travel crunch coming, Whitney called Colin Osborne, IBM's worldwide business executive in charge of MQSeries, and told him, "We're really in the soup here, and we've got to hit it with everything we've got," Whitney remembers.

IBM then put "a small, dedicated hit squad" of about eight people on the bug, Osborne said. On Nov. 11, IBM transmitted a fix to Delta that didn't work. It took several more attempts — and another 12 days — before Delta finally got a fix that worked.

Despite those problems, Whitney stressed that "we treasure our working relationship with Hursley. [It] was strong enough to weather the delays" and ultimately solve the problem.

However, he and Lockett said that in the future they will have more faith that their own staff is doing things right and that the problem might be the product. "The guys we have here are real sharp," Lockett said. The next time, he said, "we wouldn't say, 'Tell us what we're doing wrong.' We would ask some more pointed questions" sooner. — Robert L. Scheier

Exxon/Mobil

CONTINUED FROM PAGE 1

Burkett, president of Compass America Inc., an IT performance consultancy based in Reston, Va.

Mobil, for example, took a big hit in 1995, losing 30% of its IT staff as part of a companywide restructuring designed to save $1 billion. Exxon, meanwhile, has been on a cost-cutting binge since the mid-1980s. Now it's banking on saving $2.8 billion as part of the Mobil takeover, as it cuts 9,000 jobs, closes offices and shares technology.

Meanwhile, the combined oil behemoth will face enormous systems and cultural integration challenges. They include merging separate SAP software systems to support a combined global operation with annual revenue of more than $203 billion. Last year, Mobil and Exxon together employed about 122,000 workers.

"There's going to be an awful lot of work doing SAP-to-SAP implementation," said Howard Anderson, president of The Yankee Group, an IT consulting firm in Boston.

Exxon is further along with its SAP implementation, which began in 1994. Mobil was due to begin its SAP project last month and complete it by the middle of next year, according to a July press release from SAP.

PHOTOGRAPH BY TOM GRALISH/STAFF PHOTOGRAPHER

BUSY, BUSY

Exxon and Mobil "also have to deal with the fact that almost everybody at both companies already has a full plate between [separate enterprise resource planning] projects and year 2000," said Barry Brunsman, an energy industry analyst at Deloitte & Touche Consulting Group/ICS in Chicago.

In statements filed with the Securities Exchange Commission earlier this year, Exxon reported that it has already spent $130 million on year 2000 work, which it plans to complete by year's end.

Mobil reported that 68% of its year 2000 work had been completed at a cost of $89 million. Additionally, Mobil said it had spent another $154 million on new systems to improve business operations.

"In a merger, cost savings are expected to come out of IT, but the reality is that their project slate is full, and they don't have the ability to let people go. They're also creating a brand-new, huge project in systems integration with SAP. This could potentially compromise other big projects," Brunsman said.

It's only after that integration is completed — probably in 2001 — that the IT employment picture will change, analysts said.

Then, fewer IT employees will be needed, resulting in a combined IT organization about the same size of Exxon's current IT group. Officials at Exxon and Mobil declined interview requests.

"What we'll see during the integration period is a lot of [IT] people being offered early retirement, then hired back as consultants" until the integration work is finished, said Mike Weiner, an energy industry analyst at Computer Sciences Corp. in Boston.

Ironically, it was the generally superefficient and innovative use of IT on the part of oil companies that helped create the current oil glut — and consequently caused profit margins to shrink, said Bart Taylor, an energy industry analyst at Aberdeen Group Inc. in Boston.

Exxon, Mobil and their rivals all have used petroleum-exploration technologies so well that they have found and are able to produce more oil than customers are demanding. In the past few months, that has caused prices to drop to an 11-year low of less than $12 per barrel.

By merging, Exxon and Mobil hope to form back-office systems that are just as efficient, Taylor said. "It is the only way for [energy companies] to survive. Driving down internal costs is a dire mandate for the industry." □

Grocer

CONTINUED FROM PAGE 1

of the issues" at CSU. But he added that SAP's German development labs also are working to fix additional problems for the retailer. Those fixes are due to be finished next month.

CSU's difficulties follow an October decision by Nash Finch Co., a Minneapolis-based food wholesaler and supermarket operator, to shelve most of its $76 million SAP project after development delays made it impossible to install the software in time for 2000 [CW, Nov. 2].

SAP is making a big pitch to retailers, which have much more complex processing needs than the manufacturers that are R/3's main audience. But only two U.S. companies have gone live with SAP Retail thus far, and CSU is the first user in Central America.

CSU officials said they went live with the early-release software to get SAP Retail installed in time for the holiday season and the start of the company's new fiscal year in October. The retailer isn't convinced yet that the production release of SAP Retail 4.0 will solve all of its problems, they added.

Jim Shepherd, an analyst at AMR Research Inc. in Boston, said the so-called first customer shipment release that CSU installed is akin to beta-test code for SAP.

Experienced R/3 shops start running real applications on such releases "all the time, but it's unquestionably a risky thing for a brand-new user to do," Shepherd said. And the unproven nature of SAP's retail technology "further complicates things" for CSU, he said.

U.S. retailer MJDesigns Inc. turned on the production version of SAP Retail 4.0 in September, using the same mix of a Windows NT server and an Oracle Corp. database that CSU has installed.

MJDesigns ran into "some minor performance issues, but those were resolved quickly and were just a matter of tuning," said Colby Springer, CIO at the chain of 57 arts and crafts supply stores based in Coppell, Texas. "We're surviving quite well."

On the other hand, CSU still is running its old homegrown AS/400 applications in tandem with SAP Retail. That, along with all the manual work that employees are doing, "has created a very negative environment around SAP" within the company, said Pablo Garro, who represents CSU's logistics department on the project team.

Uploading daily sales data into R/3 takes as long as an hour per store, too much time for a company with 78 stores in Costa Rica alone, said Sergio Ortiz, a project team member who works in store operations at CSU. As a result, the company's corporate databases "just aren't getting updated," he said.

CSU has stopped installing SAP Retail at stores for now, Ortiz said. The company also put off going live with SAP's product replenishment and promotions modules, and Pereira said it may temporarily stop processing payments to suppliers on R/3 and go back to the AS/400 instead of shuttling data between the two systems.

"We're still convinced we can take this on, but we're concerned that other people in the company aren't as supportive anymore," Garro said.

"At the lower levels, we're worried that people are losing faith," he said. □

Banking site relies on Domino

By Roberta Fusaro

UNION BANK OF CALIFORNIA N.A. in Los Angeles last week officially launched its online banking service based on Lotus Development Corp.'s Notes client and Domino server.

Officials at the bank and at Lotus said it marks the first use of Domino Web server to conduct online banking.

New customers can open accounts at the Web site, and current clients can customize their Web page view to transfer money among accounts, look at balances and get investment advice stored on the Domino server.

The service has been available to select customers since mid-November and was made generally available last week.

Site creators took into account the best practices of other banks' Web banking sites, said Heather Robinson, vice president of interactive markets at the bank. So far, the site is collecting 200 to 300 account applications per day, she said.

Union Bank had to establish the service to keep up with the Joneses, Robinson said. "It's almost become a commodity [for bank customers] to be able to conduct transactions online."

The bank already used Notes and Domino in-house for messaging and workflow applications and wanted to leverage its investment, Robinson said. □

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Exxon/Mobil

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Burkett, president of Compass America Inc., an IT performance consultancy based in Reston, Va.

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Mobil reported that 68% of its year 2000 work had been completed at a cost of $89 million. Additionally, Mobil said it had spent another $154 million on new systems to improve business operations.

"In a merger, cost savings are expected to come out of IT, but the reality is that their project slate is full, and they don't have the ability to let people go. They're also creating a brand-new, huge project in systems integration with SAP. This could potentially compromise other big projects," Brunsman said.

It's only after that integration is completed — probably in 2001 — that the IT employment picture will change, analysts said.

Then, fewer IT employees will be needed, resulting in a combined IT organization about the same size of Exxon's current IT group. Officials at Exxon and Mobil declined interview requests.

"What we'll see during the integration period is a lot of [IT] people being offered early retirement, then hired back as consultants" until the integration work is finished, said Mike Weiner, an energy industry analyst at Computer Sciences Corp. in Boston.

Ironically, it was the generally superefficient and innovative use of IT on the part of oil companies that helped create the current oil glut — and consequently caused profit margins to shrink, said Bart Taylor, an energy industry analyst at Aberdeen Group Inc. in Boston.

Exxon, Mobil and their rivals all have used petroleum-exploration technologies so well that they have found and are able to produce more oil than customers are demanding. In the past few months, that has caused prices to drop to an 11-year low of less than $12 per barrel.

By merging, Exxon and Mobil hope to form back-office systems that are just as efficient, Taylor said. "It is the only way for [energy companies] to survive. Driving down internal costs is a dire mandate for the industry." □

Grocer

CONTINUED FROM PAGE 1

of the issues" at CSU. But he added that SAP's German development labs also are working to fix additional problems for the retailer. Those fixes are due to be finished next month.

CSU's difficulties follow an October decision by Nash Finch Co., a Minneapolis-based food wholesaler and supermarket operator, to shelve most of its $76 million SAP project after development delays made it impossible to install the software in time for 2000 [CW Nov. 2].

SAP is making a big push to retailers, which have much more complex processing needs than the manufacturers that are R/3's main audience. But only two U.S. companies have gone live with SAP Retail thus far, and CSU is the "first user in Central America.

CSU officials said they went live with the early-release software to get SAP Retail installed in time for the holiday season and the start of the company's new fiscal year in October. The retailer isn't convinced yet that the production release of SAP Retail 4.0 will solve all of its problems, they added.

Jim Shepherd, an analyst at AMR Research Inc. in Boston, said the so-called first customer shipment release that CSU installed is akin to beta-test code for SAP.

Experienced R/3 shops start running real applications on such releases "all the time, but it's unquestionably a risky thing for a brand-new user to do," Shepherd said. And the unproven nature of SAP's retail technology "further complicates things" for CSU, he said.

U.S. retailer MJDesigns Inc. turned on the production version of SAP Retail 4.0 in September, using the same mix of a Windows NT server and an Oracle Corp. database that CSU has installed.

MJDesigns ran into "some minor performance issues, but those were resolved quickly and were just a matter of tuning," said Colby Springer, CIO at the chain of 57 arts and crafts supply stores based in Coppell, Texas. "We're surviving quite well."

On the other hand, CSU still is running its old homegrown AS/400 applications in tandem with SAP Retail. That, along with all the manual work that employees are doing, "has created a very negative environment around SAP" within the company, said Pablo Garro, who represents CSU's logistics department on the project team.

Uploading daily sales data into R/3 takes as long as an hour per store, too much time for a company with 78 stores, in Costa Rica alone, said Sergio Ortiz, a project team member who works in store operations at CSU. As a result, the company's corporate databases "just aren't getting updated," he said.

CSU has stopped installing SAP Retail at stores for now, Ortiz said. The company also put off going live with SAP's product replenishment and promotions modules, and Pereira said it may temporarily stop processing payments to suppliers on R/3 and go back to the AS/400 instead of shuttling data between the two systems.

"We're still convinced we can take this on, but we're concerned that other people in the company aren't as supportive anymore," Garro said.

"At the lower levels, we're worried that people are losing faith," he said. □

Banking site relies on Domino

By Roberta Fusaro

UNION BANK OF CALIFORNIA N.A. in Los Angeles last week officially launched its online banking service based on Lotus Development Corp.'s Notes client and Domino server.

Officials at the bank and at Lotus said it marks the first use of Domino Web server to conduct online banking.

New customers can open accounts at the Web site, and current clients can customize their Web page view to transfer money among accounts, look at balances and get investment advice stored on the Domino server.

The service has been available to select customers since mid-November and was made generally available last week.

Site creators took into account the best practices of other banks' Web banking sites, said Heather Robinson, vice president of interactive markets at the bank. So far, the site is collecting 200 to 300 account applications per day, she said.

Union Bank had to establish the service to keep up with the Joneses, Robinson said. "It's almost become a commodity [for bank customers] to be able to conduct transactions online."

The bank already used Notes and Domino in-house for messaging and workflow applications and wanted to leverage its investment, Robinson said. □

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The Back Page

altcw

Dispatches & images from the fringes of the electronic frontier

A BUG'S LIFE, YEAR 2000-STYLE

It's been lurking as a faceless threat long enough. This week, Pick Systems Inc. in Irvine, Calif., plans to unveil the winner of its contest for the best illustration of the millennium bug. The top prize goes to Michelle Farooqi in Mississauga, Ontario, whose design is published here for the first time. Judges included year 2000 consultant Peter de Jager and several animation experts, such as the creator of *The Ren & Stimpy Show*.

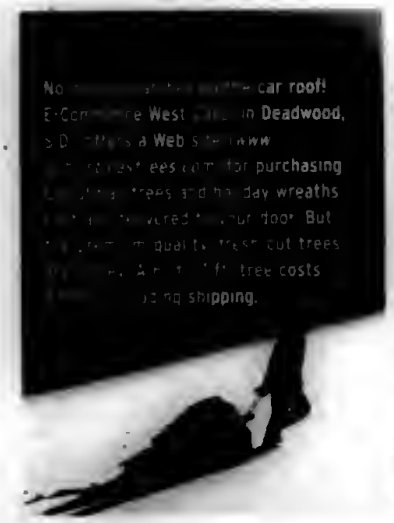
Digital archivas

20 YEARS AGO
(DECEMBER 1978)

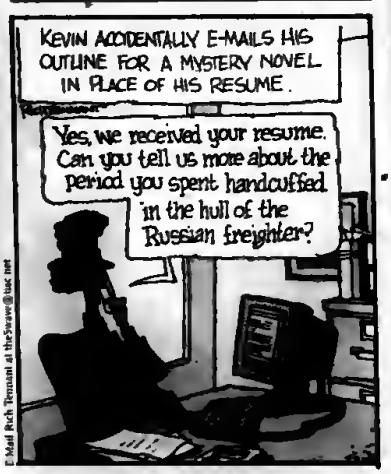
- Atari announces the Atari 400 and 800 personal computers.
- Microsoft Corp.'s sales for the year reach $1 million.
- Epson announces the MX-80 dot-matrix printer.

10 YEARS AGO
(DECEMBER 1988)

- Computer hacker Kevin Mitnick, 25, is charged with going on another computer crime spree.
- AT&T Corp. buys Paradyne Corp., a data communications equipment vendor.
- IBM retreats from the telephone equipment market, selling much of its Rolm subsidiary to Siemens.



THE FIFTH WAVE *by Rich Tennant*


KEVIN ACCIDENTALLY E-MAILS HIS OUTLINE FOR A MYSTERY NOVEL IN PLACE OF HIS RESUME.
Yes, we received your resume. Can you tell us more about the period you spent handcuffed in the hull of the Russian freighter?
E-Mail Rich Tennant at theFwave@tiac.net

Inside Lines

Netscape adds E-commerce systems

Netscape Communications today will release three electronic-commerce offerings, sources said. TradingXpert, a $100,000 package, will help large companies set up online trading communities and manage transactions with their partners and suppliers. A second package, ECXpert 2.0, will include more scheduling and process-management capabilities than the product's first version. And a new ECXpert Enterprise Edition will help companies extend enterprise applications over the Web.

Call it Java – for a price

Seeking to bring wayward factions into the Java fold, Sun Microsystems has been talking to some "clean-room" vendors — who develop their own Java technology based on Sun's specifications but don't license Sun's technology — about expanding their Java licensing options. One proposal would, for a fee, let clean-room vendors use the Java name as long as they include certain Sun technology in their products, use clean-room vendor said. But so far, Sun's terms haven't gone over well. Said another vendor: "I want to applaud the effort, [but] we would just like to see better [licensing] terms."

But www.magicmoma.com is still available

Why is New York's Museum of Modern Art at odds with the Message-Oriented Middleware Association? Here's a hint: One is at www.moma.org, the other www.mom-inc.org. Though the trade group has been calling itself MOMA since 1994, the museum's lawyers are, um, encouraging a name change. MOMA (the trade group) will soon be known as the International Middleware Association — not to be confused with the Institute for the Musical Arts (www.ima.org) in Bodega, Calif., or E-mail gateway vendor International Messaging Associates (www.ima.com).

Rumor mill

Is Apple Computer about to announce a wireless handheld device to compete with the newly announced Palm VII from Palm Computing? Gossip about such a device (code-named Pi) has been around since Apple abandoned its Newton, but analysts last week said that rumors are heating up again. . . . Sun Microsystems plans to unveil new year 2000 tools next Tuesday, about a week before Microsoft officially announces its own year 2000 tool set . . . Word should come this week from the Internet Engineering Task Force that it has approved WebDav, a new protocol to let Net users read, write, edit and save shared documents regardless of the Web browser they use. . . . The IT labor market in Silicon Valley is so tight that headhunters are doing what was once unthinkable — farming out searches to other staffing firms.

Overheard

Citigroup Executive Vice President Edward Horowitz on his bank's three biggest competitors 10 years from now: "An SAP or a Microsoft; the telcos — who are looking to add value to their networks; and an unknown start-up in Eastern Europe." . . . Steve Schlaes, Oracle vice president of corporate quality, serving up sandwiches at a charity event last Thursday: "Heavy on the peanut butter, light on the jelly?" . . . Peter Graf, director of technology marketing at SAP, on the company's new EnjoySAP initiative: "In Europe, 'enjoy your work' is a common phrase. But that's not so in the U.S., apparently."

Oracle employees lined up Thursday for the kind of holiday cheer that sticks to the roof of your mouth. As part of a fund-raiser for a local California food bank, Oracle President Ray Lane and other executives served up $5 peanut-butter-and-jelly sandwiches to hundreds of Oracle workers. It's heart-warming — but when do you suppose those executives last chowed down on PB&J? News editor Patricia Keefe is hoping you'll send some nutritious news tips and tidbits her way. E-mail her at patricia_keefe@cw.com or call (508) 820-8183.

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YOU BECOME INTERGALACTIC HORSESHOE CHAMPION.
THE KIDS MOVE BACK IN. WITH THEIR KIDS.
YOU COME BACK AS A MUSHROOM.
AND END UP IN A SALAD.
YOU PROMISE TO BE BETTER NEXT TIME.
YOU COME BACK AS SANTA.
AND DELIVER EVERYTHING VIA THE WEB.
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